Public Comments Received on EPA's Draft National Pollutant Discharge Elimination System (NPDES) Permits for Federal Hydroelectric Projects in the Lower Columbia and Snake Rivers

March 18 through May 4, 2020

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May 4, 2020

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Re: Comments of the American Public Power Association on U.S. EPA Region 10 Draft National Pollution Discharge Elimination System Permits for Hydroelectric Facilities on the Lower Columbia and Snake Rivers

Dear Ms. Wu:

The American Public Power Association (APPA or Association) appreciates the opportunity to submit these comments on U.S. Environmental Protection Agency (EPA or Agency) Region 10's Draft National Pollution Discharge Elimination System (NPDES) Permits to discharge pollutants under Clean Water Act (CWA), 33 United States Code (U.S.C.) §1251, for the eight dams located on the Lower Columbia and Snake Rivers.[1] APPA's comments largely pertain to special condition E, Cooling Water Intake Structure (CWIS) Plan and CWIS Annual Report as referenced in Lower Columbia and Snake River Draft Fact Sheets.[2]

These Proposed Permits are EPA's first statement on the applicability of CWA § 316(b) to hydroelectric facilities. The Draft Fact Sheets include a framework for evaluating whether hydroelectric facilities satisfy "best technology available" (BTA) under CWA § 316(b) on a case-by-case, "best professional judgment" (BPJ) basis. In each of the Proposed Permits, the Region makes a determination that existing facility attributes, with an additional reporting requirement, is enough to satisfy BTA for § 316(b). APPA respectfully disagrees, that CWA§ 316(b) is applicable to hydroelectric facilities. Interpreting §316(b) to apply to hydroelectric facilities would be a significant expansion of EPA's regulatory jurisdiction and would duplicate

[1] Bonneville Project, U.S. Army Corps of Engineers WA0026778, The Dalles Lock and Dam, U.S. Army Corps of Engineers WA0026701, John Day Project, U.S. Army Corps of Engineers WA0026832, McNary Lock and Dam, U.S. Army Corps of Engineers WA0026824 (together, Proposed Permits).
[2] Draft NPDES Permit Fact Sheet, Lower Columbia River Hydroelectric Facilities, at 52 (Mar. 18, 2020) (Draft Lower Columbia River Facilities Fact Sheet) and Draft NPDES Permit Fact Sheet, Lower Snake River Hydroelectric Facilities, at 51-52 (Mar. 18, 2020) (Draft Lower Snake River Facilities Fact Sheet) (together, Draft Fact Sheets).

other federal and state requirements. Even if the statute leaves room for EPA to interpret § 316(b) as applicable to such facilities, there are sound reasons for EPA to determine that it does not apply.

APPA is the voice of not-for-profit, community-owned utilities that power 2,000 towns and cities nationwide. We represent public power before the federal government to protect the interests of the more than 49 million people that public power utilities serve, and the 93,000 people they employ. The Association advocates and advises on electricity policy, technology, trends, training, and operations. Our members strengthen their communities by providing superior service, engaging citizens, and instilling pride in community-owned power. APPA members operate hydroelectric facilities, power plants, and other facilities that generate, transmit, and distribute electricity to residential, commercial, industrial, and institutional customers. APPA's membership includes owners and operators of hydroelectric facilities that would be affected by the adoption and issuance of the Proposed Permits and to the extent they are relied on by other EPA regions and state permit writers. The issuance of these Proposed Permits is particularly important to the public power utilities that purchase power from the Bonneville Power Administration, as these Proposed Permits conditions could have rate impacts for Bonneville's customers throughout the Northwest.

While there are aspects of the Proposed Permits, we support. APPA makes the following points.

- CWA§ 316(b) does not apply to hydroelectric facilities. Congress and EPA never considered applying CWA §316(b) to hydroelectric facilities, which divert small quantities of water for cooling purposes.
- APPA supports EPA's determination that the 2014 Existing Facilities Rule does not apply to hydroelectric facilities.[3]
- Other federal and state regulations comprehensively regulate hydroelectric facilities and their environmental impacts, including the Federal Energy Regulatory Commission (FERC).
- APPA recommends several changes to the proposed BPJ framework, including clarification regarding how certain aspects of the proposed four-factor analysis would

[3] Final Regulations to Establish Requirements for Cooling Water Intake Structures at Existing Facilities and Amend Requirements at Phase I Facilities, 79 Fed. Reg. 48,300 (Aug. 15, 2014) (2014 Existing Facilities Rule).

be applied and recommends the elimination of facility wide PBJ conditions that exceed EPA's § 316(b) authority.

The below comments elaborate on our concerns and points of clarification. APPA is a member of the Utility Water Act Group (UWAG) and supports their detailed technical and legal comments.

I. CWA § 316(b) Is Not Applicable to Hydroelectric Facilities

The Region's proposal to apply CWA § 316(b) to hydroelectric facilities even on a BPJ case-by-case basis, is not consistent with the statute. The Draft Fact Sheets for Region 10's Proposed Permits assert, for the first time, that "all cooling water intake structures at hydroelectric facilities are subject to [BPJ] Section 316(b) cooling water intake structure conditions."[4] The Proposed Permit points to EPA's authority under 40 Code of Federal Regulations (C.F.R) §125.90(b), meaning that a "cooling water intake structure not subject to substantive provisions under the existing facility rule (40 C.F.R. §125.94-99) or another 316(b) requirements rule must meet requirements established on a case-by-case, BPJ basis."[5] However, EPA never considered applying §316(b) requirements to sources outside the categories for which it had developed national standards, such as hydroelectric facilities. The Proposed Permits and Draft Fact Sheets fail to provide any legal support or analysis for applying § 316(b) to hydroelectric facilities, even on a BPJ basis.

CWA§ 316(b) applies only where EPA establishes technology standards under §§ 301 and 306 for point sources. Unlike the other facilities to which EPA has applied § 316(b), EPA has not established technology-based limitations and standards for hydroelectric facilities, nor would it be reasonable to do so given the *de minimis* nature of their discharges. As the United States Supreme Court has recognized, absent clear direction from Congress, courts will view (and agencies should view) with skepticism statutory interpretations that extraordinarily expand regulatory jurisdiction.[6]

Of course, EPA can identify additional categories of discharges suitable for development of national standards, but nothing in the statute authorizes the application of § 316(b) to industries for which no standards exist or suitability determination has been made. It, therefore, would be

[4] Draft Fact Sheet Lower Columbia and Snake River Hydroelectric Generating Permits at 52.
[5] *Id.*
[6] *Util. Air Regulatory Grp. v. EPA, 134 S. Ct. 2427, 2444 (2014).*

unlawful for EPA to interpret the BPJ provision as a loophole to this statutory requirement – especially when EPA never indicated in its promulgation of the BPJ regulation its intent to apply the provision to any facilities not subject to national guidelines. When EPA adopted its § 316(b) rules, it never considered the data collection requirements for, the availability and costs of technology, and the impacts or benefits of applying § 316(b) to sources outside those categories for which it had developed national standards.

EPA's longstanding position that § 316(b) only applies to those industries for which categorical standards have been developed or are determined to be necessary and appropriate has remained in effect. EPA's BPJ provisions have been in effect for almost two decades and neither federal nor state NPDES permitting authorities have interpreted that BPJ provision to apply to hydroelectric facilities.[7]

EPA regions and other permitting authorities should not rely on the BPJ provision to circumvent § 316(b)'s statutory requirements without adequate legal, technical, economic, and policy rationale developed through a rulemaking process. Therefore, EPA should determine that CWA § 316(b) does not apply to hydroelectric facilities. APPA recommends EPA clarify in the final permits that it is not determining § 316(b) be applied to all hydroelectric facilities nationwide, but rather any such determination is inconsistent with statutory language and regulatory framework for hydroelectric facilities.

A. EPA Has Never Provided an Opportunity to Comment on the Applicability of § 316(b) Requirements to Hydroelectric Facilities.

Under the Administrative Procedures Act, an agency must publish a notice of proposed rulemaking in the *Federal Register*, which "shall include . . . either the terms or substance of the proposed rule or a description of the subjects and issues involved."[8] After the notice is published, the agency must "give interested persons an opportunity to participate in the rule making through submission of written data, views, or arguments."[9] Prior to the implementation of the 2014 Existing Facilities Rule, there had never been any indication from EPA or Congress that CWA § 316(b) could apply to hydroelectric facilities.

[7] 40 C.F.R. § 125.90(b) (New Facilities BPJ provision, effective since 2001) and 40 C.F.R. § 125.90(b) (Existing Facilities BPJ provision, effective since 2004).
[8] 5 U.S.C. § 553(b)(3).
[9] *Id.*

1. Hydroelectric Facilities Were Not Evaluated in Prior §316(b) Rules

EPA issued its first § 316(b) rule in 1976 but the U.S. Court of Appeals for the Fourth Circuit remanded it to EPA on procedural grounds.[10] EPA's remaining rule and guidance instructed NPDES permit writers to make case-by-case determinations regarding BTA for CWIS at point sources subject to EPA technology standards established pursuant to §§ 301 or 306.[11] Subsequently, EPA has issued several rules for existing, new and low flow steam electric plants and manufacturing facilities which were ultimately withdrawn.[12] Then in 2014, EPA issued a single rule for Existing Facilities.

During the development of the Phase I, II, and III rules, EPA never suggested that any of those rules would apply to hydroelectric facilities, whether or not the facilities use cooling water and need an NPDES permit. In the preamble to the proposed rule for Existing Facilities, EPA explicitly stated that withdrawals from hydroelectric facilities were not meant to be addressed by the Existing Facilities Rule:

> Given the diversity of industrial processes across the U.S., there are many other industrial uses of water not intended to be addressed by today's proposed rule . . . Warming water at liquefied natural gas terminals, and hydro-electric plant withdrawals for electricity generation are not cooling water uses and are not addressed by today's proposal . . . [13]

EPA has implemented § 316(b) by issuing regulations that establish BTA standards for intake structures that become binding for certain facilities only after the standards are incorporated into an NPDES permit for discharges from a regulated facility. At no point during EPA's long history of implementing § 316(b) have EPA's regulatory actions addressed the applicability of CWA § 316(b) to hydroelectric facilities or suggested that CWA § 316(b) would apply to hydroelectric facilities on a case-by-case BPJ basis. Then in 2018, EPA Region 1 and 10 proposed NPDES general permits for hydroelectric facilities in Idaho, Massachusetts, and New Hampshire that

[10] *Appalachian Power Co. v. Train, 566 F.2d 451 (4th Cir. 1977).*
[11] 40 C.F.R. § 401.14.
[12] Phase I Rule, 66 Fed. Reg. at 65,256, Phase II Rule, 69 Fed. Reg. 41,576 (July 9, 2004) and the Phase III rule, 71 Fed. Reg. 35,006 (June 16, 2006).
[13] 76 Fed. Reg. at 22,190 (emphasis added).

would apply CWA § 316(b).[14] EPA Region 1 and 10 have not finalized the propsoed general permits. To date, EPA has not responded to stakeholder concerns rasied in those proceedings.

II. Applicability of EPA's 2014 § 316(b) Existing Facilities Rule

APPA supports EPA's determination that the 2014 § 316(b) Existing Facilities Rule does not apply to hydroelectric facilities. If EPA concludes that CWA § 316(b) applies to hydroelectric facilities, the requirements of EPA's 2014 § 316(b) Existing Facilities Rule are not appropriate for such facilities, which are fundamentally different from the steam electric power and manufacturing plants considered in that rulemaking. The Draft Fact Sheets state that, even though the facilities meet the regulatory thresholds for the 2014 Existing Facilities Rule, EPA has determined, "in light of the text, structure, history and purpose of the regulation, in the case of hydroelectric facilities, the rule is ambiguous as to application of the substantive requirements and that the EPA never intended that the rule's substantive provisions would apply to them."[15] The 2014 Existing Facilities Rule's administrative record provides further evidence EPA did not consider technologies, costs, and associated benefits of hydroelectric facilities. The economic analysis in the 2014 Existing Facilities Rule describe steam electric facilities as those generating units that are fueled by "coal, gas, oil, waste, nuclear, geothermal, and solar steam."[16] EPA did not include an economic analysis of the 2014 Rule's impact on hydroelectric facilities. Further, in the Technical Development Documents, EPA provides a table of the 1,065 estimated facilities potentially affected by the 2014 Rule and did not include hydroelectric facilities. EPA made no attempt to determine whether any of the nation's 2,100 hydroelectric facilities would meet the rule's thresholds. Instead, EPA concluded that "[u]nits with water turbines, or 'hydroelectric units,'… do not use a steam loop and do not use cooling water…." [17]

Accordingly, it is appropriate for EPA to determine, as it has in the Draft Fact Sheets, that the 2014 Existing Facilities Rule does not apply to hydroelectric facilities.

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[14] EPA's Proposed Issuance of NPDES General Permit for Hydroelectric Facilities Within the State of Idaho (IDG360000) (July 11, 2018), 83 Fed. Reg. 18,555 (Apr. 27, 2018) and EPA Region 1 Proposed NPDES General Permit for Hydroelectric Generating Facilities in Massachusetts (MAG360000) and New Hampshire (NHG360000) (Oct. 19, 2018), 83 Fed. Reg. 42,118 (Aug. 20, 2018).
[15] Draft Lower Columbia River Facilities Fact Sheet at 52; Draft Lower Snake River Facilities Fact Sheet at 51.
[16] Technical Development Document for Final Section 316(b) Existing Facilities Rule (May 19, 2014) (2014 TDD) TDD at 4-23 ("Only prime movers with a steam-electric generating cycle use large enough amounts of cooling water to fall under the scope of the proposed rule.").
[17] 2014 TDD at 4-22.

A. Other Statutes and Federal Requirements are in Place to Address CWIS

The Proposed Permits only apply to certain federal hydroelectric facilities on the Columbia and Snake Rivers while non-federal hydroelectric facilities are regulated under the Federal Power Act (FPA) by FERC. The FERC hydroelectric licensing process generally address all issues related to the use of water by non-federal hydroelectric facilities, including any water quality issues raised by a state CWA § 401 certification. Federal hydroelectric facilities are authorized through a variety of mechanisms, including specific legislation, and are often subject to National Environmental Policy Act (NEPA) and Endangered Species Act (ESA) reviews and requirements. The Proposed Permits introduce a framework that could have implication beyond federal hydroelectric facilities including non-federal hydroelectric projects. Applying the Proposed Permit's BPJ framework conditions more broadly could be duplicative of other federal and state requirements already in place.

Federal requirements under NEPA and ESA compel the evaluation of potential impacts to aquatic species. Federal hydroelectric facilities have an obligation to ensure that their actions are not likely to jeopardize the continued existence of any federally listed endangered or threatened species.[18] Non- FERC regulated facilities engage in consultation with the U.S. Fish and Wild Life Services (FWS) and or the National Marine Fisheries Service (NMFS) (together, the Services) to satisfy the obligation under ESA § 7. Through this process, these agencies and the project proponent work together to eliminate or minimize potential impacts to these species. At the conclusion of this process, these agencies impose conservation and mitigation measures to minimize impacts to protected species from hydroelectric facilities, including from the diversion of cooling water. For projects that will result in incidental take, these agencies recommend imposition of reasonable and prudent measures to minimize the take of listed species. These eight federal dams have been subject to stringent fish protection measures required by previous biological opinions and state requirements.[19]

FERC authorized hydroelectric facilities require project sponsors engage in informal consultation with NMFS and/or FWS to determine whether the project will impact a federally listed species. This process frequently results in implementing measures to protect listed species

[18] 16 U.S.C. § 1536.
[19] *See* 2019 National Marine Fisheries Service Columbia River System Biological Opinion (2019 NMFS CRS BiOp).

that might be impacted by hydroelectric facility operations, including the diversion of cooling water.

NEPA reviews require the federal agency operating the facility or FERC to develop a Finding of No Significant Impact (FONSI), an Environmental Assessment (EA), or an Environmental Impact Statement (EIS) for a project. Entrainment, impingement, and other impacts on fish and wildlife are analyzed in these environmental documents. The environmental analyses conducted under NEPA generally address entrainment associated with all water passing through the projects, including the enormous amount of water that goes through the turbines for electricity generation. While these environmental studies do not specifically focus on entrainment specific to the small pipes and other structures that various hydroelectric facilities use to divert water for service water and cooling purposes, withdrawals and entrainment impacts from these cooling water diversions would be exceptionally smaller. In addition, FERC frequently addresses the issue of fish impingement and entrainment by requiring licensees to screen their intakes to prevent or minimize fish from entering the penstock, which can eliminate or reduce the possibility of impingement or entrainment during the diversion of water from the penstock for cooling purposes.

Furthermore, states are provided broad discretion under CWA § 401 to impose conditions as part of state-issued water quality certificates in the context of FERC's licensing and relicensing of projects or federal authorizations for non-FERC regulated facilities (e.g., NPDES permits). FERC may not issue a license, and non-FERC regulated facilities generally cannot operate, unless the state has either issued or waived the water quality certificate. States have used this authority to impose conditions related to fisheries, aesthetics, recreation, and more.[20] Such conditions are considered "mandatory," meaning the federal agency has no discretion but to incorporate them into the facility's authorization, be it a FERC license or NPDES permit.

The FERC licensing process already provides for measures to minimize adverse environmental impacts of hydroelectric operations and, at times, may be more stringent than § 316(b) requirements. Any obligation to apply § 316(b) requirements, through application of a

[20] *See, e.g., S.D. Warren Co. v. Maine Bd. of Envtl. Prot.*, 547 U.S. 370 (2006) (holding FERC-licensed dams must comply with state certification that required operator to maintain stream flow and allow passage for certain fish and eels).

case-by-case BPJ determination, would be largely duplicative of existing federal and state requirements already in place.

III. EPA Should Clarify the Proposed BPJ Framework and Conditions

The Proposed Permits appropriately recognize that hydroelectric facilities' existing controls are technologies that satisfy the requirements of BTA to minimize entrainment and impingement mortality.[21] EPA acknowledes "many hydroelectric facilities are required to implement measures that reduce the impacts of the dam, including the impacts to passage of aquatic life through the dam, as conditions of a FERC license or a Biological Opinion."[22] These statement further support the conclusion that §316(b) does not apply to hydroelectric facilities. APPA maintains that § 316(b) does not apply to hydroelectric facilities and, as such, the BPJ four factor analysis is inapproperiate and unnecessary.

The Propsoed Permits outline four factors that are considered "technologies" that could minimize adverse environmental impacts from the use of a CWIS at hydroelectric facilities. APPA provides the following recommondations to clarify the conditions under which the BPJ analysis is performed. The Draft Fact Sheets include a four-factor framework for evaluating whether a hydroelectric facility meets BTA for purposes of CWA § 316(b). The four-factor framework is based on: (1) efficiency of power generation; (2) cooling water withdrawn relative to waterbody volume or flow; (3) location of the intake structure; and (4) technologies at the facility.[23] To the extent these factors apply more broadly to other hydroelectric facilities outside of the Proposed Permits, EPA must clarify how the four factor BPJ analysis would apply.

The Draft Fact Sheets state that "EPA may use any of the four factors, or other facility-specific factors, in its BPJ analysis to determine whether BTA requirements have been satisfied. Any combination of one or more of the factors may be used to address entrainment and impingement."[24] APPA agrees that permit writers should find BTA is satisfied if any one of the four factors outlined is met. But it is unclear how EPA would apply Factors 1-3, since EPA

[21] Draft Lower Columbia River Fact Sheet at 53; Draft Lower Snake River Fact Sheet at 52.
[22] *Id.*
[23] Draft Lower Columbia River Facilities Fact Sheet at 53-54; Draft Lower Snake River Facilities Fact Sheet at 52-53.
[24] Draft Lower Columbia River Fact Sheet at 53; Draft Lower Snake River Fact Sheet at 52.

determined that the Lower Columbia River and Lower Snake River facilities at issue satisfy BTA based solely on Factor 4.

APPA is concerned, however, that EPA's application of Factor 4 (existing technologies at the facility) for the Proposed Permits relies on the technologies or facility attributes as a whole, and not the intake structure. The incorporation of such facility-wide operations and attributes as enforceable NPDES permit conditions could create duplicative and, in some cases, conflicting requirements that would go beyond EPA's authority under CWA § 316(b), which is limited to the "location, design, construction, and capacity" of the CWIS. A closer review of the four factors is warranted.

A. Efficiency of Power Generation- Factor 1

EPA proposes to consider how efficient a facility produces electricity by comparing megawatts produced to the quantity of cooling water used. APPA agrees with EPA's assessment that hydroelectric facilities are generally more efficient than a once-through steam electric facility as they generate less waste heat. Based on this factor alone, permit writers should be able to conclude that § 316(b) BTA requirements have been satisfied. EPA should clarify what kind of analysis or support permit writers would need to use to rely on this factor. APPA recommends that EPA clarify that, if this factor is satisfied, the permit writer need not evaluate the other factors. In order to satisfy this, an applicant would need to provide a calculation of the ratio of million gallons a day (MGD) of cooling water used by the hydroelectric facility to megawatts (MW) produced. In general, those ratios, when compared to steam electric plants, demonstrate that the hydroelectric facilities' flows are much more efficient than once-through steamelectric facilities and compare favorably to rates achieved by existing steam electric plants with closed-cycle recirculating cooling systems.

B. Cooling Water Withdrawn Relative to Waterbody Volume or Flow- Factor 2

The second factor proposes to consider "proportional flow." In previous rulemakings, EPA stated that using a low percentage of the waterbody flow or volume for cooling could be a factor that addresses impacts due to entrainment. In the 2014 Existing Facilites Rule, EPA established "proportional-flow requirements" that were intended to provide protections in addition to those

commensurate with closed cycle and velocity requirements.[25] APPA supports EPA's use of the New Facility Rule's "proportional flow requirements" and agrees that the cooling water withdrawn at hydroelectric facilities will almost always be below 5% (in most cases, less than 1%) of the water passed through the dam for generating purposes. However, EPA's use of proportional flow requirements does not only address entrainment, this it also addresses impingement, another relevant issue. The underlying record that EPA has established for impingement through its § 316(b) rules assumes mobility. Once organisms are committed to moving through the facility, mobility would not matter. Therefore, EPA should clarify that the proportional flow factor may be used to address both impingement and entrainment.

C. Location of the Intake Structure- Factor 3

The Draft Fact Sheet states the location of the intake in areas with lower densities of impingeable or entrainable organisms will reduce the adverse impacts associated with the use of the CWIS.[26] Hydroelectric facilities vary significantly in terms of design and configuration, especially when it comes to the pipes and structures that divert water for purposes of cooling EPA notes, dams are designed such that the location of the penstock openings on the dam face are located at a depth with a lower density of organisms to reduce entrainment through the dam thus minimizing impacts from the operations of the turbine. As the CWIS is within the dam, there is a similar reduction in the density of organisms as compared to an intake on the face of the dam or in the waterbody itself. APPA agrees that the location of the intake structure in the penstock or scroll case can demonstrate that the facility meets BTA for § 316(b). Permit writers should be able to conclude that § 316(b) BTA requirements have been satisfied based where the intake is located within the dam, on this factor alone.

D. Technologies at the Facility- Factor 4

EPA relied on Factor 4, the technologies at the facility, in its BPJ evaluation for BTA. Existing technologies at these facilities include measures to deter fish from intakes, encourage fish to travel through fish passage structures or over spillways, and decrease velocities through turbines to minimize impingement and entrainment of aquatic life at cooling water intakes.

[25] Draft Lower Columbia River Fact Sheet at 53; Draft Lower Snake River Fact Sheet at 52.
[26] Draft Lower Columbia River Fact Sheet at 54; Draft Lower Snake River Fact Sheet at 53.

The technologies which EPA relies on in the application of Factor 4 are technologies or attributes for the whole facility, and not the intake, and therefore goes beyond the scope of EPA's § 316(b) authority. While these technologies may help indicate that a facility already meets BTA (because any adverse impacts are minimized by virtue of those non-CWIS technologies), those technologies should not be incorporated as enforceable conditions of an NPDES permit. APPA urges EPA to limit the factors of its BPJ test to factors specific to the cooling water intake and to remove permit conditions that would impose operations or technology requirements for the whole facility.

The specificity of the Proposed Permit conditions under Factor 4 could also limit adaptative management practices. The Proposed Permit conditions extract specific requirements from Fish Operating Plans and Fish Passage Plans and make those enforceable NPDES conditions, but those plans change frequently as facilities learn what measures are successful and feasible. Moreover, the permit conditions do not provide enough flexibility for the facilities to adjust their operations as needed. For example, requirements to operate turbines at +/- 1% peak efficiency flows could be problematic depending on maintenance or necessary upgrades at a given facility. While technologies may help support a BTA determination the technologies should not be incorporated into an enforceable 5-year NPDES permit.

To the extent, the proposed four factor framework is a model for other states or EPA regions. The final permits should acknowledge the fish protection measures and operational requirements for the eight Corps facilities at issue here are specific to plans that were designed based on the attributes of the facilities, their locations on the Lower Columbia and Lower Snake Rivers, and the salmonid and other fish species in the area, among other things. APPA recommends EPA clarify in the final fact sheet that the facilities at issue have technologies and requirements that are specific to their location, waterbodies, and the relevant species in the area. EPA should acknowledge that many facilities in other parts of the country may not have such technologies or operations requirements. Where hydroelectric facilities do not have such conditions or attributes for the facility as a whole (*e.g.*, operation of turbines at +/- 1% peak efficiency flows), EPA does not have authority under the CWA to require facilities to implement such facility-wide technologies or requirements.

IV. § 316(b)-Related Application or Data Collection Requirements

The Draft Fact Sheets state that, "[i]n most cases, the EPA expects existing documentation may be used to evaluate these factors."[27] Even though EPA makes this general acknowledgement, APPA is concerned that the open-ended nature of the BPJ framework could lead permit writers to seek development of new information or costly studies (e.g., impingement and entrainment studies) to inform the application of these four factors. The data and calculations to satisfy Factors 1- 3 should be relatively straightforward. APPA is concerned about what information applicants would be required to provide for Factor 4. Requesting data that facilities do not know how to collect, particularly with respect to Factor 4, is problematic. For many hydroelectric facilities, conducting impingement or entrainment sampling at the pipe or intake structure would be very difficult, or even unsafe. Likewise, for many facilities, it may be difficult to collect information regarding the velocity approaching the intake. Therefore, APPA recommends that EPA include a statement acknowledging that such studies or monitoring are impracticable and/or the regulatory costs would far exceed any plausible environmental benefits and should not be required by permit writers.

V. Conclusion

APPA appreciates the opportunity to submits these comments. The Region's proposal to apply CWA § 316(b), even on a BPJ case-by-case basis, to hydroelectric facilities is neither required by nor consistent with the CWA or EPA's previous rulemakings. EPA should clarify in the final permits that it has not made a determination that CWA § 316(b) applies to hydroelectric facilities and that it will not make such a determination without full and procedurally appropriate consideration of the issue via a separate rulemaking. If EPA intends to apply the proposed BPJ framework to apply § 316(b) to hydropower facilities, then EPA should provide the clarifications discussed above and ensure that any BPJ permit conditions are consistent with the limits of EPA's CWA § 316(b) authority.

APPA hopes that EPA will pursue its recommendations and looks forward to working with you to address these meaningful issues. Please contact Ms. Carolyn Slaughter at CSlaughter@PublicPower.org or 202-467-2900 if you have questions regarding these comments.

[27] Draft Lower Columbia River Fact Sheet at 53; Draft Lower Snake River Fact Sheet at 52.

Sincerely,

Carolyn Slaughter, Environmental Policy Director
American Public Power Association

United States Department of the Interior

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VIA ELECTRONIC MAIL ONLY

Jennifer Wu
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NPDES Permits Unit
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Subject: Proposed Discharge Permits for Federal Hydroelectric Projects in the Lower Columbia and Lower Snake Rivers

The Bureau of Reclamation appreciates the opportunity to comment on EPA's eight proposed NPDES permits for the U.S. Army Corps of Engineers' projects on the lower Columbia and lower Snake rivers. In light of the issuance of a draft NPDES permit for Grand Coulee in the near future, Reclamation intends these comments to inform EPA's perspective of the broader Columbia River permitting effort. Reclamation's comments here focus on how EPA applies Clean Water Action section 316(b) to the Corps permits.

Section 316(b) provides that any "standard" promulgated under section 301 or 306 of the Act "and applicable to a point source shall require that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact."[1] This statute is not self-executing; rather, it depends for its implementation upon EPA's promulgation of a "standard … applicable to a point source."

In the draft Corps NPDES permits, EPA concludes that the Best Professional Judgment (BPJ) rule is a standard applicable to existing hydroelectric facility point sources. But, in EPA's proposal to promulgate the existing facility rules, including the BPJ rule, EPA explained that "hydro-electric plant withdrawals for electricity generation are not cooling water uses and are not addressed by today's proposal."[2] Consistent with this understanding, EPA did not evaluate control technology feasibility for hydroelectric dams in the rulemaking process. The final existing facility rules accordingly found the potential impact of the rules on hydroelectric generation capacity to be "NA."[3]

It appears that EPA's proposed application of the rule to the Corps NPDES permits is premised on the broad language of the codified regulations.[4] Reclamation recognizes reconciling that broad language with the foregoing rulemaking record could create ambiguity. Reclamation does not, however, agree that

[1] 33 U.S.C. § 1326(b).
[2] National Pollutant Discharge Elimination System—Proposed Regulations for Cooling Water Intake Structures at Existing Facilities and Phase I Facilities, 76 Fed. Reg. 22,174, 22,190 (Apr. 20, 2011). This makes sense because many, if not most, hydroelectric facility withdrawals for electricity generation include water used for cooling.
[3] National Pollutant Discharge Elimination System-Final Regulations To Establish Requirements for Cooling Water Intake Structures at Existing Facilities and Amend Requirements at Phase I Facilities, 79 Fed. Reg. 48,300, 48,395 (Aug. 15, 2014) (Ex. IX-11).
[4] U.S. Environmental Protection Agency, NPDES Fact Sheet, U.S. Army Corps of Engineers Lower Snake River Hydroelectric Facilities 51-52 (March 2020) (citing 40 C.F.R. § 125.90(b)).

applying section 316(b) to existing hydroelectric facilities through the BPJ rule is a reasonable interpretation of EPA's regulation. Given the stated exclusion of hydroelectric facilities from the existing facility rules and absence of control technology analysis for this source category, the more reasonable interpretation is that the rules do not establish a "standard … applicable to" existing hydroelectric facilities.[5]

If EPA maintains its interpretation that the BPJ standard applies, Reclamation encourages EPA to explain further its reasoning. In particular, Reclamation recommends EPA consider whether hydroelectric facilities are similar to those source categories for which EPA established the BPJ rule; namely, sources for which studies failed to identify broadly applicable feasible control technologies.[6] To Reclamation's knowledge, EPA has not conducted any analogous control technology studies for hydroelectric facilities. Reclamation expects, however, that such an analysis would show the unique designs, operations, and regulatory contexts of individual hydroelectric facilities preclude broad application of uniform, and in some cases effective, control technology standards.

In the absence of such a source category control technology analysis, Reclamation urges EPA to add two factors to its BPJ framework for existing hydroelectric facilities. The first, threshold factor should consider the extent to which a hydroelectric facility cooling water intake structure causes adverse environmental impacts, the focus of section 316(b). For some facilities, including those that divert cooling water from the penstock, the cause of adverse environmental impact is often not the cooling water intake structure itself, but, rather, the diversion of water into the penstock. In those situations, the cooling water diversion is a reuse of water diverted into the penstock for hydroelectric generation, and the penstock diversion, which falls outside the scope of section 316(b), is the primary cause of adverse environmental impact.[7] A "but for" causation test could aid EPA's consideration of this factor, and ensure the analysis remains appropriately focused on adverse environmental impacts of cooling water intake structures.

Second, EPA should add a fifth, umbrella factor to allow consideration in the BPJ determination of facility specific conditions potentially excluded from the four factors EPA enumerates in the draft permits. This factor would fit the necessarily flexible approach EPA has proposed, limit the risk that the framework will prove unworkable due to unforeseen conditions, and ensure BPJ determinations may consider all relevant site specific conditions.

Reclamation supports EPA's careful consideration of the NPDES permits for Federal hydroelectric facilities, and appreciates the opportunity to comment here.

Sincerely,

Lorri J. Gray
Regional Director

[5] Reclamation questions whether the ad hoc nature of BPJ can reasonably be considered a "standard" in the absence of source category evaluations showing that broadly applicable control technology—i.e., a standard—is not feasible.
[6] 76 Fed. Reg. at 22,195-96.
[7] Such a factor supports reasoning analogous to the exclusion under the existing facilities rule of the application of impingement mortality standards where other water is reused as cooling water. *See* 40 C.F.R. § 125.94(c)(10).

Department of Energy

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POWER SERVICES

May 1, 2020

In reply refer to: PGA-6

Comment submitted via email: Wu.Jennifer@epa.gov

Jenny Wu
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EPA Region 10
1200 6th Avenue, Suite 155 (19-CO4)
Seattle, WA 98101

Subject: Comments to the United States Environmental Protection Agency's Region 10 on draft discharge permits for eight federal hydropower facilities on the Lower Columbia and Snake Rivers.

Dear Ms. Wu:

The Bonneville Power Administration (Bonneville) appreciates the opportunity to provide comments on the United States Environmental Protection Agency's (EPA) proposal to issue NPDES permits for the following eight hydropower facilities:

- Bonneville Project, NPDES Permit No. WA0026778
- The Dalles Lock and Dam, NPDES Permit No. WA0026701
- John Day Project, NPDES Permit No. WA0026832
- McNary Lock and Dam, NPDES Permit No. WA0026824
- Ice Harbor Lock and Dam, NPDES Permit No. WA0026816
- Lower Monumental Lock and Dam, NPDES Permit No. WA0026808
- Little Goose Lock and Dam, NPDES Permit No. WA0026786
- Lower Granite Lock and Dam, NPDES Permit No. WA0026794

The draft NPDES permits place conditions on the discharge of pollutants from these eight facilities to waters of the United States (U.S.). The eight federal draft NPDES permits would authorize discharges from cooling water, equipment, floor drains, sumps, facility maintenance water, and other miscellaneous discharges.

The U.S. Army Corps of Engineers (Corps) operates and maintains the four lower Snake and four lower Columbia River facilities for multiple congressionally authorized purposes including flood risk management, navigation, hydropower generation, fish and wildlife conservation, irrigation, recreation, water quality, and municipal and industrial water supply though not every facility is authorized for every one of these purposes. While the Corps is congressionally authorized to operate these facilities in the Pacific Northwest for multiple purposes, Bonneville is the federal agency Congress authorized to market and distribute the power generated at these facilities. In return, Bonneville is required to pay, either directly to the Corps, or as a reimbursement to the U.S. Treasury, (1) all costs associated with power-specific operations and assets (e.g. turbines); and (2) a share of "joint costs," which benefit or mitigate, for all purposes of the facility (e.g. fish mitigation, water quality). For the facilities funded using the Corps' Columbia River Fish Mitigation program (CRFM), which includes the four lower Snake and four lower Columbia River facilities listed above, the Northwest ratepayers' (Bonneville's customers) share of joint costs totals 83% for capital investments and 82% for operations and maintenance expenses. Any additional costs applied to these eight facilities as a result of these draft NPDES permits or associated 401 certifications will increase Bonneville's costs, which in turn will impact Bonneville ratepayers throughout the Northwest.

Bonneville markets and distributes the hydropower generated at the four lower Snake and four lower Columbia River facilities. Bonneville, as part of the U.S. Department of Energy, operates as a not-for-profit federal entity, selling cost-based electrical power and transmission services to benefit the Pacific Northwest, especially the public bodies and cooperatives that serve domestic and rural consumers. In providing these services, Bonneville must balance multiple public duties and purposes, including: assuring the Pacific Northwest has an adequate, efficient, economical and reliable power supply; promoting energy conservation and the use of renewable resources; and, acting consistent with the program developed by the Northwest Power and Conservation Council by protecting, mitigating, and enhancing fish and wildlife in the Columbia River basin that are affected by the development and operations of the federal facilities from which Bonneville markets power.[1]

[1] 16 U.S.C. § 839. Unlike most federal agencies, Bonneville does not receive annual congressional appropriations; instead, the agency is self-financed from revenues received from the sale of power and transmission services. Bonneville utilizes this revenue to not only pay for the continuing costs associated with its programs (including power, transmission, and fish and wildlife investments and maintenance) but also to repay the United States Treasury for the power share of the original federal investment used to construct the Federal Columbia River Power System. The Bonneville Administrator must operate the agency in a manner that allows it to recover its costs "in accordance with sound business principles." 16 U.S.C. § 839e(a)(1).This includes the objectives of setting the lowest possible rates for Bonneville services, while enabling Bonneville to make timely repayments to the Treasury and simultaneously fulfilling multiple public purposes for the benefit of the Pacific Northwest.

Bonneville's comments focus on providing feedback on the permit conditions identified in these draft NPDES permits, and also provide recommendations for corrective action where language is ambiguous or inaccurate. Since the draft NPDES permits are identical, the following comments apply to all of the draft NPDES permits for the four lower Snake and four lower Columbia River facilities. As the principal funding entity for the four lower Snake and four lower Columbia River facilities, Bonneville respectfully submits the following comments:

1. There are limitations to the conditions that may be imposed through EPA's draft NPDES permits.

As recognized by EPA in its Fact Sheets for the lower Snake and lower Columbia River draft NPDES permits, these draft NPDES permits do not address water flowing through the facilities' spillways or passing through turbines. *See National Wildlife Federation v. Consumers Power Company*, 862 F.2d 580 (6th Cir. 1988); *National Wildlife Federation v. Gorsuch*, 693 F.2d 156 (D.C. Cir. 1982). For example, as also recognized in the EPA Fact Sheets, juvenile fish passage spill events, which are adaptively implemented to benefit juvenile and adult fish passage, are not regulated by NPDES permits. Juvenile fish passage spill is adaptively managed for these facilities through the 2019 National Marine Fisheries Service Columbia River System Biological Opinion (2019 NMFS CRS BiOp) (and part of the proposed action for the ongoing consultation regarding these facilities) and neither the NPDES permits nor the associated 401 certifications should infringe upon this longstanding adaptive management process.

As discussed above, the four lower Snake and four lower Columbia River facilities are multi-purpose dams. Therefore, any conditions imposed by the draft NPDES permits and Washington Department of Ecology's (Ecology) 401 certifications should not interfere with the Corps' ability to operate these facilities for the multiple purposes authorized by Congress. *See National Wildlife Federation v. U.S. Army Corps of Engineers*, 384 F.3d 1163 (9th Cir. 2004). Further, the language of the Clean Water Act (CWA) explicitly recognizes that the provisions of the CWA cannot be construed to affect the Corps' ability to maintain navigation. *See* 33 USC 1371(a); *In re Operation of Missouri River System Litigation*, 418 F.3d 915 (8th Cir. 2005).

2. The draft NPDES monitoring, reporting and analysis requirements are burdensome and should be reduced to apply only to a representative number of discharge points.

Bonneville requests that all outfalls under 1 million gallons/day (MGD) should be waived from sampling due to their de minimis impact. Bonneville requests that the timing and extent of the monitoring, analysis, and reporting requirements for pH, temperature, oil and grease, polycyclic biphenyls (PCB), total suspended solids (TSS) and biological oxygen demand (BOD) and chemical oxygen demand (COD) be re-evaluated for utility, practicability, and cost effectiveness.

The Corps has acted in good faith and demonstrated reasonable assurance that there will be compliance with the applicable provisions in the draft NPDES permits through its past actions. In fact, the Corps has already established a system for monitoring, reporting, and analysis of the impact of discharges on a representative sample of discharges, to the extent practicable. Based on the data collected to date, the discharge at the facilities will not result in the discharge of pollutants in quantities that would pose a reasonable, unacceptable risk to human health or the environment according to EPA's Fact Sheet. Bonneville requests that EPA coordinate directly with the Corps to identify representative monitoring and sampling locations and monitoring frequency that results in data utility, practicability and cost effectivenss.

Bonneville requests that EPA reduce the scope of monitoring, analysis, and reporting to include only those scientific investigations that are necessary to study the effects of the discharge that may be impacted by processes at the facilities, and not a byproduct of influent pass-through such as BOD, COD and pH. The monitoring, analysis and reporting costs associated with these draft NPDES permits are estimated to be up to approximately $3 million in the first year of implementation and $400,000 to $600,000 per year after, including up to six full time employees for the lower Columbia and Snake River projects for the duration of the permits if the monitoring requirements remain as is. Adding these estimated costs across the four lower Snake and four lower Columbia River facilities will create a significant financial impact to Bonneville and the region's ratepayers.

Lastly, Bonneville requests EPA to clarify the metric that determines compliance with the effluent limits. EPA should clarify whether the absolute value of each individual sample will be compared to the limit, or whether a daily average, monthly average, or other statistic will be used for compliance purposes. For each parameter with effluent limits the sampling frequency is either weekly or monthly. For oil and grease, it is clear from the effluent limitation tables that the numeric limit is a daily maximum. However, the other parameters metric that determines compliance should be clarified.

a. **pH**: Bonneville requests reconsideration of including pH as a required monitored parameter in the draft NPDES permits. Hydropower dams, including these facilities, generally do not have the means to modify the pH of a waterbody and are merely passing the influent water through their discharge. In addition, according to the EPA Fact Sheets, section II(D) Impaired Waters / TMDLs section, which accompanied the draft NPDES permits, it appears there are no water quality-limited streams for pH listed on Oregon's and Washington's 303(d) lists. Thus, it is unclear why EPA would suggest monitoring this parameter. Requiring monitoring for a parameter that these projects generally cannot influence in areas where there is no water quality limitation for this parameter is burdensome to limited agency resources and needlessly, increases costs, which in turn impacts the Region's ratepayers.

Additionally, EPA's Fact Sheet for the Lower Columbia River states that where high levels of pH were measured to date at The Dalles Lock and Dam, those outfalls are currently undergoing a disconnection process so there will no longer be discharges from these outfalls. As EPA noted in their Fact Sheet, The Dalles Lock and Dam had pH values below 7 in most outfalls and above 8.5 with a maximum of 8.9 in outfalls 18 to 31. These outfalls are associated with transformer cooling water. The Corps communicated to EPA by email on August 28, 2018, that outfalls 20, 21, 24, and 25 have been disconnected and that the remaining outfalls are scheduled to be disconnected within the next five years when the operations change to air cooling transformer units. Once all the outfalls are disconnected, there will be no discharges from these units and the outfalls would be merely passing influent water.

Thus, Bonneville requests removing pH as a required monitored parameter in the draft NPDES permits. If EPA retains pH as a monitored parameter, then Bonneville recommends reducing the grab sample monitoring for pH to quarterly monitoring because these facilities do not have the means to modify the pH of a waterbody and are merely passing the influent water through the outfall.

b. **Water temperature**: Bonneville requests reconsideration of the proposed temperature monitoring frequency proposed in the draft NPDES permits. Based on EPA's Fact Sheets, the discharges at the four lower Snake and four lower Columbia River facilities will not affect the quality of the waters of either Washington or Oregon. Many of the outfalls covered by the draft NPDES permits are likely submerged, and the discharges from these outfalls make up a

very small percentage of the total flow of the receiving waters. In fact, EPA's Fact Sheets state that "discharges from these facilities have minimal impact" on river temperatures. This statement is based on effluent temperature data collected and submitted by the Corps and then analyzed by EPA.

Because the cooling water impacts are de minimis, the requirement that continuous monitoring thermistors be installed at identified discharge points in each of the draft NPDES permits is unnecessarily burdensome due to the uniformity of the effluent. Further, this will lead to needless and excessive costs and will result in duplicative data that will provide little additional utility. Collecting continuous monitoring at the identified discharge points will not provide additional information on river temperature characteristics due to the small percentage of water used for cooling water compared to river flow. This requirement is expensive and overly burdensome resulting in no additional data value – other than to confirm a de minimis impact.

Moreover, EPA is proposing year-round monitoring for temperature in their draft NPDES permits. River water temperatures are highly influenced by weather (e.g., high ambient air temperatures). Additionally, water temperature is important to salmonids listed as threatened or endangered under the Endangered Species Act (ESA) in the Columbia River. The proposed year-round monitoring seems to be based solely on the criticality of temperature to ESA-listed salmonids. Based on the effluent data collected by the Corps, there is a de minimis impact from temperature at these discharge points, which is insufficient to impede salmonid migration, condition or habitat.

Additionally, historical temperatures in the lower Snake River basin prior to the construction of the lower Snake River facilities and the Hells Canyon Complex show that temperatures in the free-flowing lower Snake River often exceeded 68°F (20°C) in July and August and occasionally exceeded 25°C. These measurements were taken near the mouth of the Snake River from 1955 to 1958.[2] Thus, imposing year-round temperature monitoring, continuous temperature monitoring or additional temperature control provisions through these draft NPDES permits or 401 certifications with targets that may be unattainable even in an unmodified system is overly burdensome. This is especially true given the minimal impact of these discharges on river temperature and that river temperatures are highly influenced by weather (e.g., high ambient air temperatures).

[2] Peery, C. A. and T. C. Bjornn. 2002. Water Temperatures and Passage of Adult Salmon and Steelhead in the Lower Snake River. Technical Report 02-1. U.S. Geological Survey, Idaho Cooperative Fish and Wildlife Research Unit, University of Idaho, Moscow, Idaho.

Thus, Bonneville recommends eliminating the continuous monitoring requirement or reducing it to monthly grab samples for the first year, with the potential to eliminate it after the first year. If EPA includes continuous temperature monitoring, Bonneville recommends that it is revised to more representative sampling (i.e. one thermistor per family of turbines on a reduced monitoring frequency and for a shorter time frame). This will enable data collection in a reasoned and measured manner and avoid diverting limited agency resources. Bonneville requests that EPA coordinate directly with the Corps to identify representative continuous monitoring and sampling locations, and monitoring frequency.

c. **Oil and grease**: For oil and grease, the 5 mg/L effluent limit is stringent given that the effluent limit in the draft general permit for hydroelectric generating facilities in Idaho was 10 mg/L. Bonneville recommends the effluent limit be increased to 10 mg/L to be consistent with the draft general NPDES permit in Idaho.[3] Bonneville also requests that the oil and grease effluent limit criteria be clarified as an average of the day. This aligns with other regional practices, as seen in the draft general NPDES permit in Idaho, and will reduce the monitoring and reporting burden placed on the Corps. Bonneville recommends reducing the weekly or monthly grab sample monitoring for oil and grease to quarterly monitoring in these draft NPDES permits because monitoring to date by the Corps has not resulted in effluent limits exceeding the proposed 5 mg/L threshold assuming 5 mg/L is the average (referred to as maximum) daily discharge of samples taken. Bonneville requests that EPA coordinate directly with the Corps to identify representative monitoring and sampling locations and monitoring frequency.

d. **PCBs**: Bonneville recommends that the requirement to develop a PCB Management Plan be removed from each of these draft NPDES permits because historic sampling has not identified PCBs in discharges from these facilities. PCBs are a contaminant already regulated under the Toxic Substances Control Act (TSCA). Including this requirement is an over-reach of the CWA, expensive and overly burdensome given the duplicative nature of this requirement under TSCA.

Additionally, Bonneville requests EPA to clarify Section 1.B.6 of the permits which states, "The permittee is prohibited from discharging polychlorinated biphenyl (PCB) compounds such as those commonly used for transformer fluid." This statement does not provide a clear definition

[3] Draft NPDES General Permit IDG360000 for Wastewater Discharges from Hydroelectric Generating Facilities in Idaho.

of what constitutes a discharge of PCBs. The statement could be interpreted to mean that PCBs must be discharged at concentrations below the freshwater toxicity criteria, or below the reporting or detection limit for a specific analytical method. Bonneville requests that EPA provide clarification for this statement.

e. **TSS, and BOD and COD**: Bonneville recommends removing the TSS and BOD and COD requirements from the draft NPDES permits for Ice Harbor, Little Goose and Lower Monumental dams. These facilities do not add to or concentrate TSS, and BOD and COD. Additionally, these water quality parameters are not influenced by activities at the dams and reflect pass through influent water quality.

3. CWA Section 316(b) or EPA's implementing rules for cooling water intake structure requirements do not apply to hydropower facilities and should be removed from these draft NPDES permits.

EPA's 2014 Section 316(b) Existing Facilities Rule applies to and was developed for steam electric power and manufacturing plants, which are fundamentally different than the four lower Columbia and four lower Snake River facilities. EPA has not established standards for hydropower facilities as part of the 2014 rule and historically has not applied CWA Section 316(b) to hydropower facilities. During the development of the 2014 rule, EPA did not solicit information from the hydropower industry and did not consider hydropower facilities in the rule. CWA section 316(b) should not apply because the applicability of the rule to hydropower facilities is unclear and is essentially an expansion of EPA's regulatory jurisdiction and authority resulting in duplication of other federal and state requirements to address fish impingement and entrainment.

Importantly, for any facility with a biological opinion under the ESA, such as these eight facilities, a comprehensive evaluation of impingement and entrainment has already occurred for the facility as a whole by NMFS and US Fish and Wildlife Service (USFWS). Thus the reference to the details of the annual Fish Passage Plan, including the Fish Operations Plan, should be removed from the permits, as they are overreaching and constraining to a system that is adaptively managed through the BiOps. CWA Section 316(b) conditions are not appropriate for hydropower facilities and should be removed from these draft NPDES permits.

In EPA's Section 316(b) 2014 rule, a facility is required to meet only one of the four factors in the order listed. It is unclear why EPA chose to use factor four for these draft NPDES permits to make their determination that technologies at the facility, in its best professional judgement (BPJ) evaluation for best technology available (BTA), satisfy 316(b) requirements when these facilities also meet factors one, two, and three. The four factors are:

Factor 1 - Efficiency of Power Generation
Factor 2 - Cooling Water Withdrawn Relative to Waterbody Volume or Flow
Factor 3 - Location of the Intake Structure
Factor 4 - Technologies at the Facility

Bonneville recommends that EPA clarify that the four factors above represent a progressive test, that if one of these factors is satisfied in the order specified, then the permit writer need not evaluate the other factors. Said another way, if one of the facilities meets one of the four progressive factors, then the other factors do not apply. These facilities meet all four 316(b) factors, and therefore no 316(b) cooling water impingement and entrainment restrictions and conditions should be included in the draft NPDES permits or associated 401 certifications.

Additionally, the location of the intake structures in the penstock or scroll case can also demonstrate that the facility meets BTA requirements for 316(b). In the case of these draft NPDES permits, EPA relied on factor 4, the technologies at the facility, in its BPJ evaluation for BTA. Existing technologies at these facilities include measures to deter fish from intakes, encourage fish to travel through fish passage structures or over spillways, and decrease velocities through turbines to minimize impingement and entrainment of aquatic life at cooling water intakes.

4. Clarifying language needs to be added to the draft NPDES permits referenced in section II.E. Cooling Water Intake Structure Requirements to Minimize Adverse Impacts from Impingement and Entrainment that the Best Technology Available (BTA) requirements are satisfied based on the annual Fish Passage Plan, which includes the Fish Operations Plan.

Although Bonneville continues to assert that CWA Section 316(b) or EPA's implementing rules for cooling water intake structure requirements do not apply to hydropower facilities and should be removed from these draft NPDES permits, the provisions in Section II. E. in the draft

NPDES permits under CWA Section 316(b) are ambiguous as written. It could also be interpreted to inhibit the adaptive management provided for in the 2019 NMFS CRS BiOp and incorporation of future technological innovations, such as installation of improved fish passage (IFP) turbines. For example, preliminary results from 2019 at Ice Harbor Dam of juvenile fish passage survival where the Corps has installed one IFP turbine showed an average of 98% survival. Additional studies will be completed after all three of the IFP turbines have been installed.

Additionally, the eight draft NPDES permits do not recognize that the Fish Passage Plan, which includes the Fish Operations Plan, changes annually. Thus, Bonneville recommends the following rewrite of Section II.E.2 in each of the eight draft NPDES permits to clarify that this section is satisfied based on the requirements in the annual Fish Passage Plan, including the Fish Operations Plan. Bonneville suggests that **Section II.E. Cooling Water Intake Structure Requirements to Minimize Adverse Impacts from Impingement and Entrainment**, subsection (2), should read "EPA has determined that the ~~following~~ existing requirements as specified in the most recent Fish Passage Plan, including the Fish Operations Plan, are sufficient to satisfy the BTA requirement to minimize entrainment and to minimize impingement mortality." Adding the underlined language to each of the eight permits would clarify EPA's intent that the measures identified in the annual Fish Passage Plan, including the Fish Operations Plan, satisfy the BTA requirements.

Additionally, Bonneville requests EPA strike in each draft NPDES permit the provisions and language in Section II.E.2, subsections a-e, that reference spill, screens, turbine peak efficiency, turbine priority order and physical screening and exclusion technology because they are outside the scope of these permits and outside of EPA's regulatory authority. The Corps is already implementing the actions in subsections a-e as under the 2019 NMFS CRS BiOp. Bonneville recommends the following rewrite of section II. E.2:

II. Special Conditions

E. Cooling Water Intake Structure Requirements to Minimize Adverse Impacts from Impingement and Entrainment

2. EPA has determined that the ~~following~~ existing requirements as specified in the most recent Fish Passage Plan, including the Fish Operations Plan, are sufficient to satisfy the BTA requirement to minimize entrainment and to minimize impingement mortality.

~~a) Conduct spill releases over dam spillways according to schedules and guidelines in the most recent Fish Operating Plans and Fish Passage Plan.~~

~~b) Keep juvenile fish passage structures, submersible traveling screens, vertical bar screens, and trashracks free of debris or other material through regular and preventive maintenance and inspections.~~

~~c) Operate turbines within +/- 1% peak efficiency, or as specified in the most recent Fish Passage Plan.~~
~~d) Operate turbines in priority order to maximize fish passage as described in the Fish Passage Plan.~~
~~e) Maintain a physical screening or exclusion technology that is consistent with the objectives of National Marine Fisheries Service guidelines found in National Marine Fisheries Service in NMFS Northwest Region's Anadromous Salmonid Passage Facility Design, Chapter 11: Fish Screen and Bypass Facilities.~~

The Corps has already taken and continues to take actions that have resulted in improved fish passage to comply with the ESA. Specifying these provisions in these permits is unwarranted. Current CRS BiOps, issued by NMFS and the USFWS are implemented through the Corps' annual Fish Passage Plan, including the Fish Operations Plan, and the annual Water Management Plan. These BiOps provide clear, regionally developed guidance on how to comply with the ESA, but also rely upon adaptive management coordinated through the Regional Forum with federal agencies, and regional states and tribes to address in-season operational issues given river and fish conditions. In addition to many actions outside of the mainstem migration routes that will improve water quality (e.g., tributary habitat improvements), the NMFS and USFWS BiOps thoroughly analyze actions that mitigate fish impingement and entrainment through the use of the BTA. Additional guidance or explicit provisions that would be included in these five year NPDES permits are not warranted and would impact the adaptive management of these facilities and future technological innovations. Adaptive management and potential future technological innovations are governed by ESA consultation documents issued by the USFWS and NMFS that have a longer implementation period than this five year permit period of these draft NPDES permits.[4]

5. Several corrections are needed to the hydropower operations fish survival tables, Table 18, in both the Lower Columbia and Lower Snake River Fact Sheets.

Bonneville fish biologists reviewed Table 18 in both the Lower Snake River Fact Sheet (page 54) and Lower Columbia River Fact Sheet (page 55) provided by EPA on the draft NPDES permits. The tables show the correct juvenile survival range except for the following five facilities that Bonneville requests EPA correct:

- Bonneville: the fish survival is reported to be 96-98% for 2011-2012. However, it should be corrected to 95-99% survival for 2006-2012 and 2018.

[4] The Action Agencies have proposed a 15 year timeframe in its biological assessment submitted to NOAA Fisheries and USFWS on January 2020. Biological Assessment of Effects of the Operations and Maintenance of the Federal Columbia River System on ESA-Listed Species, page 1-2.

- The Dalles: the fish survival is reported to be 94-99% survival for 2010-2012. However, it should be 95-99% survival for 2010-2012 [this is likely a rounding error]
- John Day: the fish survival is reported to be 94-99% for 2011 & 2012. However, it should be 92-99% for 2010-2014.
- Ice Harbor: no fish survival data was reported for Ice Harbor. Fish survival is estimated to be 95-99% for 2006 & 2007.
- Lower Granite: no fish survival data was reported for Lower Granite. Fish survival is estimated to be 92-99% for 2006 & 2018.

It appears EPA limited their fish survival estimates to three groups: steelhead, yearling and sub-yearling Chinook. All recommended changes and corrections cover these three groups. The following reports were referenced:

-Ploskey, G.R., M.A. Weiland and T.J. Carlson. 2012. Summary of route-specific passage proportions and survival rates for fish passing through John Day Dam, The Dalles Dam, and Bonneville Dam in 2010 and 2011. Interim report of research prepared by the Northwest National Laboratory for the U.S. Army Corps of Engineers, Portland District. 20 pp. Report was sent via email to the Portland District Corps on February 28, 2012.
-Skalski et.al., 2013. PNNL-22706 [Skalski JR, RL Townsend, AG Seaburg, GA McMichael, RA Harnish, EW Oldenburg, KD Ham, AH Colotelo, KA Deters, ZD Deng, PS Titzler, EV Arntzen, and CR Vernon. 2014. FINAL BiOp Performance Testing: Passage and Survival of Subyearling Chinook Salmon at Little Goose and Lower Monumental Dams, 2013. PNNL-22706, Pacific Northwest National Laboratory, Richland, Washington.
-Skalski et. al., 2014. [Skalski J. R, M.B. Eppard, G.R. Ploskey, M.A. Weiland, T.J. Carlson, and R.L. Townsend, Assessment of Subyearling Chinook Salmon Survival through the Federal Hydropower Projects in the Main-Stem Columbia River, 2014. North American Journal of Fisheries Management 34:741–752, 2014.
-Skalski et al., 2015. PNNL-23979 [Skalski, J.R., R.L. Townsend, M.A. Weiland, C.M. Woodley, and J. Kim. 2014. Compliance Monitoring of Yearling and Subyearling Chinook Salmon and Juvenile Steelhead Survival and Passage at McNary Dam, 2014. PNNL-23979, Pacific Northwest National Laboratory, Richland, WA.
-Fredricks, G. 2017. Performance Standard Testing Results. Communication to T. Conder (NMFS) from G. Fredricks (NMFS), RE: Final Data Spreadsheet, 8/28/2017.
-Ham et. al., 2018. PNNL-28331 [Ham, KD, RA Harnish, AH Colotelo, KA Deters, J Martinez, PS Titzler, JR Skalski, RL Townsend, T Fu, X Li, CA Duberstein, ZD Deng, and GM McMichael. 2018. Survival and Passage of Yearling and Subyearling Chinook Salmon and Steelhead at Lower

Granite Dam, 2018: Technical Report. PNNL-28331. Draft report submitted by the Pacific Northwest National Laboratory to the U.S. Army Corps of Engineers, Walla Walla, Washington. -Harnish et al., 2019. PNNL-28325 [Harnish R. A., K.D Ham, J.R. Skalski, R.L. Townsend, J.M. Lady, K.D. Deters, P.S. Titzler, A.H. Colotelo CL Grant, T. Fu, X. Li, J.J. Martinez, Z. Deng, M.K. Nims, E.L. McCann, Y. Yuan, C. L. Grant, Yearling Chinook Salmon and Juvenile Steelhead Passage and Survival through the FCRPS, 2018 - Final Report.

6. The five year lifetime of these draft NPDES permits and their associated provisions could prevent adaptive management included in the 2019 NMFS CRS BiOp (and in any future CRS consultation documents) and could restrict the Corps' ability to carry out its congressionally authorized purposes.

These draft NPDES permits are envisioned to be in effect for five years which is in conflict with longer term governing documents such as the 2019 NMFS CRS BiOp and any future CRS ESA consultations. The 2019 CRS BiOp will be in effect through 2020 when it will be replaced by updated biological opinions that incorporate new actions and will be supported by analysis developed during the Columbia River System Operations Environmental Impact Statement National Environmental Policy Act process. The analyses performed by the USFWS and NMFS will cover a longer time frame than the five year NPDES permits.[5] To account for changing conditions over that timeframe, the new BiOps will continue reliance upon adaptive management of the Columbia River System. If CWA provisions are included in these draft NPDES permits that lead to a loss of existing adaptability and a loss of existing regional collaboration and creativity to solve complex issues, that would be in direct conflict with the 2019 NMFS CRS BiOp and any future CRS ESA consultations.

In addition, these draft NPDES permits or associated 401 certifications should not include juvenile fish passage spill or flow provisions. Modifying juvenile fish passage spill operations for the purposes of managing water quality is already provided for through the adaptive management provisions in the 2019 CRS NMFS BiOp.[6] River flow levels and spill rates are currently managed effectively with input from the existing Regional Forum, which provides for adaptive management where necessary. The Regional Forum includes representatives from the Corps, Bonneville, Bureau of Reclamation, NMFS, USFWS, and other sovereign entities throughout the Northwest, and includes including representatives from Washington, Oregon, Montana, Idaho and regional tribes. Adaptive management of these facilities uses a well-

[5] *See supra* note 6.

[6] A wide range of juvenile fish passage spill levels were assessed through modeling and estimated to have limited impact to water quality parameters during the Columbia River System Operations Environmental Impact Statement development.

established collaborative approach and is a specific point of emphasis for Bonneville and the Corps. Imposing additional provisions through these draft NPDES permits or associated 401 certifications can lead to a loss of this existing adaptability and regional collaboration and creativity to solve complex issues. Degradation of water quality could also occur if the permits limit the flexibility to test new technologies or operations that the Regional Forum, which could improve water quality.

Bonneville appreciates the opportunity to provide comments on EPA's draft NPDES permits for the four lower Snake and four lower Columbia River facilities to ensure that any new requirements are reasonable, purposeful, implementable, practicable, and cost effective. This is especially important to Bonneville because the draft NPDES permit conditions would further impact Bonneville's costs, and thus, the region's ratepayers. For awareness, Bonneville embarked on a multi-year effort at cost management for all of its program areas to help stabilize its revenue requirements and limit or eliminate the need for continued rate increases. Bonneville is seeking to manage costs in order to ensure a sustainable path into the future that will allow continued provision of a diverse array of public benefits to the Northwest, including a reliable and effective carbon-free power supply, fish and wildlife protection, mitigation and enhancement actions and energy conservation. Thus, we look forward to working with EPA and Ecology to ensure any new requirements for discharge monitoring at these eight facilities provide important data for the region in a cost-effective manner.

Sincerely,

Kieran Connolly
Vice President of Generation Asset Management
Bonneville Power Administration

cc: Heather Bartlett, Washington Department of Ecology, Deputy Director
(heather.bartlett@ecy.wa.gov)
Daniel Opalski, U.S. EPA, Region 10, Director Water Division
(Opalski.Dan@epa.gov)
Jennifer Wigal, ODEQ, Deputy Administrator, Water Quality
(WIGAL.Jennifer@deq.state.or.us)

From:	Paul Pickett
To:	Wu, Jennifer
Subject:	Comments on Federal Hydroelectric Permits in the Lower Snake River and Lower Columbia River
Date:	Monday, April 13, 2020 11:41:06 AM

Dear Ms. Wu,

Please accept the following comments for both proposed NPDES permits for the Lower Snake River and Lower Columbia River:

1. The NPDES permit is not in compliance with Washington's Water Quality Standards (WAC 193-201A). The discharges of cooling water as described in the fact sheet are over criteria 20 degrees C in some cases (Ice Harbor and Bonneville). The Snake and Columbia Rivers at points of discharge are impaired for temperature, but they compare the discharge to the impaired waters of the River. This approach is incorrect. The permit assumes full mixing and does not provide a mixing zone. The cooling water should at least be meeting the criterion of 20 deg daily maximum at the point of discharge, and not be increasing temperatures by more than 0.3 at any time.
2. EPA should delay issuing this permit. The timing is poor, given that a temperature TMDL is being developed for the Snake and Columbia Rivers and a DEIS developed for Columbia River System Operations. The NPDES permit should be issued after the TMDL and DEIS are completed.

Applicable permits:

- Ice Harbor Lock and Dam (WA0026816).
- Lower Monumental Lock and Dam (WA0026808).
- Little Goose Lock and Dam (WA0026786).
- Lower Granite Lock and Dam (WA0026794).
- Bonneville Project (WA0026778).
- The Dalles Lock and Dam (WA0026701).
- John Day Project (WA0026832).
- McNary Lock and Dam (WA0026824).

Thank you!

Paul Pickett
4040 Gull Harbor Road
Olympia WA 98506
360-359-3435

P.S. How are you doing, Jenny? I hope you are well.

I am just a grandfather
and I do not want my grandchildren to say
that grandpa understood what was happening
but didn't make it clear.
- James Hansen

PUBLIC UTILITY DISTRICT NO. 1
Cowlitz County, Washington
961 12th Avenue
Longview, Washington

May 4, 2020

Ms. Jennifer Wu
US EPA Region 10
1200 Sixth Avenue, Suite 155
Seattle, WA 98101
Email: Wu.Jennifer@epa.gov

RE: Comments on EPA's Region 10 Draft National Pollutant Discharge Elimination System (NPDES) Permits for Hydroelectric Facilities on the Lower Columbia and Snake Rivers

Dear Ms. Wu,

Cowlitz PUD appreciates the opportunity to review and provide comments on the Draft NPDES Permits. We applaud the United States Environmental Protection Agency (EPA) for attempting to find a reasonable approach to permitting these federal facilities. Cowlitz PUD purchases over 90 percent of its wholesale power from Bonneville Power Administration, the vast majority of which is generated by the Federal Columbia River Power System (FCRPS). Any decision which directly influences the operations of the FCRPS can create a financial impact to the District. As such, Cowlitz PUD has a keen interest when new requirements and arguably unnecessary financial burdens are placed on the FCRPS. Our ratepayers depend on the FCRPS's economical and clean power supply. Cowlitz PUD supports the comments submitted by the American Public Power Association, Public Power Council and Northwest RiverPartners.

Clean Water Act (CWA) § 316(b) Is Not Applicable to Hydroelectric Facilities

The proposal to apply CWA § 316(b), even on a best professional judgment (BPJ) case-by case basis, to hydroelectric facilities is neither compelled by, nor consistent with the CWA or EPA's previous rulemakings. The Fact Sheet states that, in most cases, EPA expects that existing technologies at a hydropower facility would satisfy best technology available (BTA) and that BTA determinations could be made based on existing documentation. EPA has not established technology-based limitations and standards for hydroelectric facilities, nor would it be reasonable to do so given the *de minimis* nature of their discharges. If EPA intends to apply the proposed BPJ framework to § 316(b) hydropower facilities, then EPA should clarify and ensure that any BPJ permit

conditions are consistent with the limits of CWA § 316(b)'s authority. Interpreting CWA § 316(b) to apply to hydroelectric generation facilities would be a significant overreach and expansion of EPA's regulatory jurisdiction and would duplicate other federal and state requirements specifically designed to address these environmental impacts.

In addition, the Draft Permits would incorporate the continued use of non-intake related technologies, such as fish passage structures, screens, and inspections. In many cases, these are attributes and conditions for the facility as a whole and not specific to the Cooling Water Intake Structure. Incorporating guidelines around the use of technology and operations of the turbines goes beyond the scope of EPA's § 316(b) authority and could negatively impact the operations and adaptive management of the dams for their multiple authorized purposes.

Requirements should be Practicable, Impactful, and not Unduly Burdensome

The onerous nature of the proposed monitoring and reporting schedule should be re-evaluated. We suggest that the sample frequency for the draft permits be adjusted to quarterly sampling instead of monthly, as monthly effluent monitoring may pose an unnecessary burden to the hydroelectric operator with little benefits yielded. There is no evidence to support the need or benefit gained by more frequent sampling. Quarterly monitoring will provide reliably adequate pollutant monitoring data.

Conclusion

Cowlitz PUD appreciates the opportunity to submit these comments. EPA should clearly state in the final permits that it has not made a determination that CWA § 316(b) applies to hydroelectric facilities. In addition, EPA should clarify that it will not make such a determination without full consideration of the issue in a procedurally appropriate manner. Cowlitz PUD recognizes and appreciates the efforts that EPA undertook and we are grateful for your consideration of our perspectives and concerns. Please contact Amanda Froberg at afroberg@cowlitzpud.org or 360-501-9274, if you have questions regarding these comments.

Sincerely,

DocuSigned by:
Gary Huhta
FE941B6F0FBF4D5...

Gary Huhta, General Manager

May 4, 2020

Office of Water and Watersheds
U.S. EPA Region 10
Attn: Jennifer Wu
1200 Sixth Ave., Ste. 155, OWW-191
Seattle, WA 98101

Submitted via email to wu.jennifer@epa.gov

RE: Public Comment on EPA's Draft NPDES Permits for Eight Federal Columbia and Snake River Dams

Dear Ms. Wu:

Columbia Riverkeeper and Snake River Waterkeeper (collectively Commenters) submit the following comments on the draft NPDES permits for the following hydroelectric facilities located on the lower Columbia and lower Snake rivers (hereafter collectively Draft Permits):

- Bonneville Project (WA0026778);
- The Dalles Lock and Dam (WA0026701);
- John Day Project (WA0026832);
- McNary Lock and Dam (WA0026824);
- Ice Harbor Lock and Dam (WA0026816);
- Lower Monumental Lock and Dam (WA0026808);
- Little Goose Lock and Dam (WA0026786); and
- Lower Granite Lock and Dam (WA0026794).[1]

Commenters represent thousands of people who rely on clean water and healthy aquatic ecosystems in Washington, Oregon, and elsewhere in the Columbia River Basin. Commenters support the U.S. Environmental Protection Agency's (EPA) long-awaited decision to issue the

[1] Commenters refer to the hydroelectric facilities as "the Dams."

Draft Permits. Hydroelectric facilities discharge pollution via point sources to waters of the United States and, in turn, EPA must regulate pollution from hydroelectric facilities pursuant to Clean Water Act (CWA) Section 402 and its implementing regulations. Academic, government, and industry studies, as well as oil spills reported to the National Response Center and state agencies, demonstrate that hydroelectric facilities, including those regulated under the Draft Permits, discharge pollutants through point sources. Yet, to date, EPA and most states have failed to regulate hydroelectric facilities under Section 402. This must change.

Commenters support EPA's decision to regulate hydroelectric facilities under Section 402, which should result in significant and important reductions in toxic and conventional pollutants. Commenters offer the following comments to ensure the eight NPDES permits comply with the CWA and protect high-quality waters and healthy aquatic ecosystems.

BACKGROUND

A. Legal Background.

Washington's rivers, and the use of rivers by people, fish, and wildlife, are protected by both federal and state law. In 1972, Congress passed the CWA to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters."[2] The CWA is the cornerstone of surface water quality protection in the United States. In the forty years since its passage, the CWA has dramatically increased the number of waterways that are once again safe for fishing and swimming. Despite the great progress in reducing water pollution, many of the nation's waters still do not meet the water quality goals. In fact, the vast majority of rivers and streams in Washington fail to meet basic state water quality standards for pollutants such as toxics and temperature.[3] These standards are designed to protect designated uses, including aquatic life, fishing, swimming, and drinking water.

The NPDES permitting scheme is the primary means by which discharges of pollutants are controlled. At a minimum, NPDES permits must include technology-based effluent limitations, any more-stringent limitations necessary to meet water quality standards, and monitoring and reporting requirements.[4] EPA and the state of Washington have issued hundreds of permits for pollution discharges into the Columbia and Snake rivers. These include permits that regulate the discharge of toxic pollution, hot water, bacteria, and other pollutants. According to EPA, improvements to water quality are directly linked to the implementation of the NPDES

[2] 33 U.S.C. § 1251(a).
[3] *See* State of Washington 303(d) List, available at https://ecology.wa.gov/Water-Shorelines/Water-quality/Water-improvement/Assessment-of-state-waters-303d; State of Oregon 303(d) List, available at https://www.oregon.gov/deq/wq/Pages/WQ-Assessment.aspx.
[4] *See* 33 U.S.C. §§ 1311, 1342, 1318.

program and the associated control of pollutants discharged from both municipal and industrial point sources.[5]

B. The Heavy Toll of Pollution in the Columbia River Basin.

The Columbia and Snake rivers support rich fishing traditions, supply water to communities and agriculture, provide recreational opportunities and navigation, and power hydroelectric dams. The rivers are also severely degraded by pollution. Toxic pollution threatens the health of people who eat local fish and jeopardizes the public's right to eat fish caught locally. Rising water temperatures also threaten the health of salmon and other aquatic life that rely on cool water for survival.

EPA designated the Columbia River Basin a Critical Large Aquatic Ecosystem in 2006 because toxic contamination and other pollution is so severe. In 2009, EPA released an in-depth report on toxic pollution in the Columbia, the *Columbia River Basin: State of River Report for Toxics*.[6] EPA's report concluded that harmful pollutants are moving up the food chain, impacting humans, fish, and wildlife. As the report explains, "[i]n 1992, an EPA national survey of contaminants in fish in the United States alerted EPA and others to a potential health threat to tribal and other people who eat fish from the Columbia River Basin." This survey prompted further study on the contaminated fish and the potential impacts on tribal members.

In particular, EPA funded four Columbia River tribes, through the Columbia River Intertribal Fish Commission (CRITFC), to study contaminant levels in fish caught at traditional fishing sites.[7] The study demonstrated the presence of 92 toxic chemicals in fish consumed by tribal members, resulting in a 50-fold increase in cancer risk among tribal members whose diets rely on river-caught fish. Contaminants found in these fish include PCBs, dioxins, furans, arsenic, mercury, and DDE, a toxic breakdown product of DDT.[8]

The CRITFC study is not alone in demonstrating the serious problem of toxic contamination. From 1989 to 1995, the Lower Columbia River Bi-State Water Quality Program (Bi-State Program) generated substantial evidence demonstrating that water and sediment in the

[5] U.S. EPA, *Water Permitting 101* at 11, http://www.epa.gov/npdes/pubs/101pape.pdf.
[6] U.S. EPA, *Columbia River Basin State of River Report for Toxics* (hereafter *State of the River Report*) (January 2009) (https://www.epa.gov/columbiariver/2009-state-river-report-toxics).
[7] *Id*. at 3.
[8] *Id.* at 19.

Lower Columbia River and its tributaries have levels of toxic contaminants that are harmful to fish and wildlife.[9] The Bi-State Program concluded that:

- Dioxins and furans, metals, PCBs, PAHs, and pesticides impair the water sediment, and fish and wildlife;
- Arsenic, a human carcinogen, exceeded both EPA ambient water criteria for protection of human health and the EPA human health advisories for drinking water;
- Beneficial uses such as fishing, shellfishing, wildlife, and water sports are impaired;
- Many toxic contaminants are moving up the food chain and accumulating in the bodies of animals and humans that eat fish;
- People who eat fish from the lower Columbia over a long period of time are exposed to health risks from arsenic, PCBs, dioxins and furans, and DDT and its breakdown products.[10]

Other studies have confirmed and added to the overwhelming scientific evidence on toxic contamination in the Columbia River Basin.[11]

Pollution discharges from the Dams contribute to the pollution crisis on the Columbia River. According to the National Oceanic & Atmospheric Administration (NOAA):

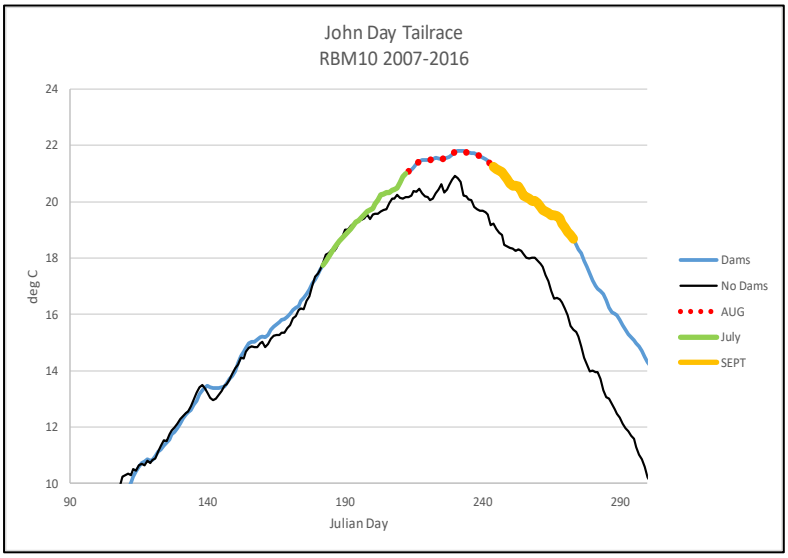
> Spilled oil can harm living things because its chemical constituents are poisonous. This can affect organisms both from internal exposure to oil through ingestion or inhalation and from external exposure through skin and eye irritation. Oil can also smother some small species of fish or invertebrates and coat feathers and fur, reducing birds' and mammals' ability to maintain their body temperatures.[12]

The impacts of oil pollution are sobering. Yet the Corps has discharged oil and other pollution from the Dams without the NPDES permit authorization required by the CWA for

[9] Lower Columbia River Estuary Partnership. 2007. *Lower Columbia River and Estuary Ecosystem Monitoring: Water Quality and Salmon Sampling Report* at 1.
[10] *Id.* at 5–6.
[11] *Id.* at 6 (citing studies by USGS, the U.S. Army Corps of Engineers, DEQ, and others); *see generally* U.S. EPA, *State of the River Report*.
[12] NOAA, Office of Response and Restoration, *How Oil Effects Fish and Wildlife in Marine Environments,* http://response.restoration.noaa.gov/oil-and-chemical-spills/oil-spills/how-oil-harms-animals-and-plants-marine-environments.html.

decades. In turn, the Corps has failed to monitor and report pollution in a manner that enables the public to fully understand the extent and severity of the problem.

The Dams also add heat—through cooling water and reservoir heating—to a river system recognized by EPA as too warm to support designated uses, including salmon habitat. Salmon need cool water to survive. Nearly two decades ago, federal scientists declared the Columbia River too hot for healthy salmon runs. Hot water pollution from point sources, including the Dams, contributes to elevated water temperatures in the Columbia River. Recent modeling by EPA (below) shows that the summer water temperatures at John Day dam are significantly warmer because of the John Day pool and upstream reservoirs.[13]



EPA modeling also shows that John Day and McNary dams together raise the temperature of the Columbia an average of 0.5 and 0.6 degrees C in August and September, respectively.[14] Similarly, the four Lower Snake River dams impound reservoirs that add heat to the river, as illustrated in the figure below.[15]

[13] EPA, *Columbia River Temperature TMDL: State and Tribal Meetings PowerPoint Presentation*, Slide 33 (January 2020).
[14] *See* EPA, *Draft Assessment of Impacts to Columbia and Snake River Temperatures using the RBM10 Model*, pp. 28–29 (December 19, 2018).
[15] Columbia Riverkeeper, *White Paper: Computer modeling shows that Lower Snake River dams caused dangerously hot water for salmon in 2015*, p. 4 (2017).

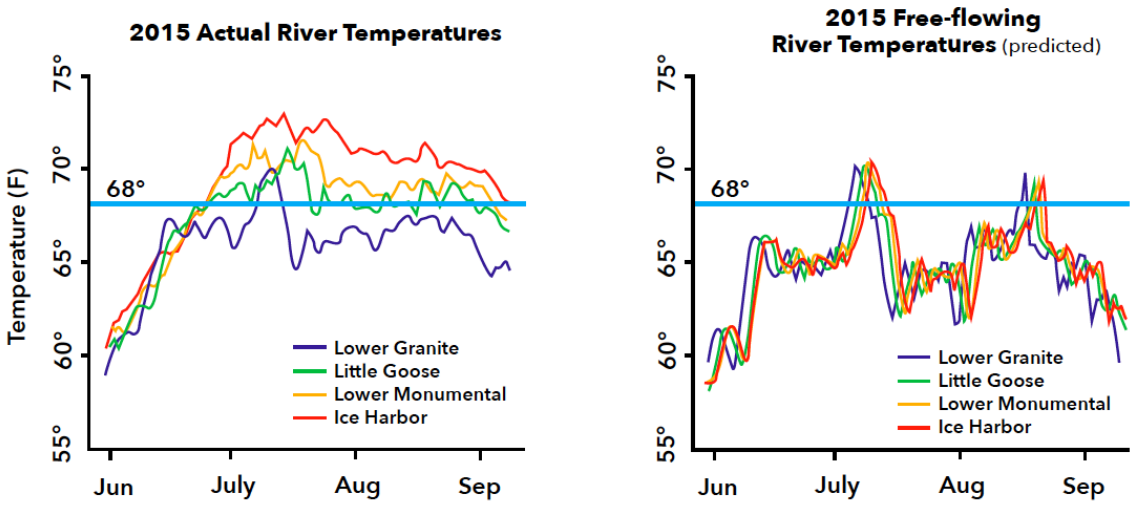


Figure 1. Comparison of 2015 summer water temperatures between the actual, dammed Lower Snake River (left) and a modeled, free-flowing Lower Snake River (right).

The devastating impact of hot water pollution on the Columbia River is not hypothetical. Northwest rivers had unreasonably high temperatures in summer 2015, warm enough to kill more than 277,000 adult sockeye salmon (about 55 percent of the total run, including 96% of endangered Snake River sockeye) returning to the Columbia and Snake rivers.[16] The Fish Passage Center, which provides technical assistance and information to fish and wildlife agencies, concluded that higher water temperatures in the Columbia and Snake rivers are largely due the Dams.[17] Unfortunately, subsequent years have shown that adult Snake River sockeye frequently die in significant numbers in the hydrosystem, largely due to warm water conditions created or exacerbated by the Dams. In 2017, the National Marine Fisheries Service (NMFS) estimated that passage through the hydrosystem killed 43% of returning adult endangered Snake River sockeye.[18] In 2018, NMFS estimated that 15% of adult Snake River sockeye died between the Bonneville and McNary dams;[19] and ladder counts suggested that 28% of the remaining fish died in the Lower Snake.[20] In 2019, ladder counts suggested 75% mortality for sockeye in the

[16] *Columbia Riverkeeper v. Pruitt*, Case No. 2:17-cv-00289-RSM, Defendants' Answer, ¶ 3 (May 15, 2017) (EPA admits that the 2015 fish kill was "attributable primarily to warm water.").
[17] Fish Passage Center, *Memorandum on Water Temperature Issues in The Columbia and Snake Rivers* (Oct. 28, 2015), http://www.fpc.org/documents/memos/159-15.pdf.
[18] NMFS, *"2019 adult survival estimates for distribution" spreadsheet; "SR Sockeye" tab* (2019).
[19] *Id.*
[20] Fish Passage Center, *Adult Returns for Columbia & Snake River Dams Webpage* (queried April 5, 2020).

Lower Snake: 320 sockeye were observed at Ice Harbor Dam ladder, but only 81 were observed in the ladder at Lower Granite Dam.[21] Adult Snake River steelhead and Chinook also suffer significant mortality from the hydrosystem. After eliminating other sources of mortality, the arduous summer and fall migrations through the hydrosystem appear to be killing 10–20%[22] of all pre-spawn adult fish from these populations, which are not meeting recovery objectives mandated by the Endangered Species Act. Moreover, these estimates of out-right fish mortality in hydrosystem do not capture the effects of chronic or cumulative thermal stress that may contribute to additional mortality or reproductive failure upstream. Clearly, the Columbia and Snake rivers are already too warm to support healthy native fish populations.

C. Pollutant Discharges from the Dams.

Section 301(a) of the CWA prohibits discharges of oils, greases, lubricants, cooling water, and other pollutants to the Columbia and Snake rivers from the Dams without NPDES permit authorization.[23] Without NPDES permits, the Corps has failed to monitor, report, and reduce pollution discharges pursuant to the CWA and state and federal implementing rules for decades.

The Dams discharge oils, greases, lubricants, and other pollutants collected from various sources through sumps, including powerhouse drainage sumps, unwatering sumps, spillway sumps, and other systems. The Dams also discharge cooling water, and the associated heat, used to cool a variety of components and materials, including turbines, generators, transformers, and lubricating oils.

The Dams utilize Kaplan turbines, which discharge oil and grease to the Columbia and Snake rivers.[24] Kaplan turbines have variable pitch blades that can be adjusted to increase

[21] *Id.*
[22] U.S. Army Corps of Engineers, *Columbia River System Operations Draft Environmental Impact Statement*, p. 3-302 (2020).
[23] 33 U.S.C. § 1311(a).
[24] *See e.g.*, Bonneville Power Administration, *Technology Innovation Project, TIP 405: Kaplan Turbines Oil Leak Elimination* (2019), https://www.bpa.gov/Doing%20Business/TechnologyInnovation/TIPProjectBriefs/2019-HY-TIP%20405-final.pdf; BBA, *Addressing Pressure Loss and Oil Leakage in Kaplan Turbines and the Impact on Efficiency* (Dec. 12, 2018), https://www.bba.ca/publication/addressing-pressure-loss-issues-for-the-kaplan-turbine-runner-blade-and-impact-on-efficiency/.

efficiency. The shaft and hubs of these turbines are filled with oil or another lubricant. This oil or lubricant leaks to surface waters from certain locations, including the turbine blade packing/seals, especially when the turbines are not properly maintained and/or operationally controlled. Available information indicates that the Corps has not properly maintained and/or operationally controlled the Kaplan turbines on the Dams in a manner to prevent or minimize discharges.

Wicket gates control the amount of water flowing through the turbines at the Dam. The Wicket gate bearings are lubricated with grease or another lubricant. This grease or lubricant is continuously fed into the bearings and discharged directly into surface waters.

Oil releases from points sources at the Dams are routine. As EPA is aware, the Corps has reported a number of large oil releases from the Dams. Notably, in 2012, the Corps reported discharging over 1,500 gallons of PCB-laden transformer oil at the Ice Harbor Dam on the Snake River. Corps officials first spotted and reported sporadic sheens in December 2012, but an investigation concluded that the leaks had been occurring since June 2012 based on transfomer oil inventory records.[25] Commenters provide the following examples of several oil discharge events from January 2017 to March 2020 to illustrate the need for monitoring, reporting, and pollution controls at the Dams:

- In 2017 the Corps reported that a series of oil spills at Lower Monumental released over 1,600 gallons of oil into the Snake River.

- The Corps reported that approximately 100 gallons of turbine oil from the Lower Monumental Dam spilled into the Snake River during a three-week period from December 14, 2017, to January 4, 2018.

- In April 2018 the Corps reported the McNary Dam discharged 162 gallons of hydraulic oil from a turbine generator head gate.

- The Corps could not account for approximately 192 gallons of turbine oil at The Dalles Dam; the agency presumed the oil discharged into the Columbia from November 29 to December 18, 2018.

[25] Scott Learn. *Slow leak at Ice Harbor dam spill 1,500 gallons of transformer oil into Snake River*, Oregonian (Jan. 27, 2012), https://www.oregonlive.com/environment/2012/01/slow_transformer_leaks_at_ice.html.

- The Corps also reported that approximately 474 gallons of turbine oil was unaccounted at The Dalles Dam and discharged to the river from February 7 to March 22, 2018.

- On March 15, 2020, the Corps reported that approximately 500 gallons of hydraulic oil was discharged to the Fish Unit 2 gate slot from the hydraulic gate system. The unit was shut down and isolated.

This non-exhaustive list of oil discharges at the Dams highlights the need for NPDES permits and the critical role they will play in reducing pollution in the Columbia and Snake rivers.

D. EPA's Arbitrary Decision to Delay Issuance of the Draft Permits.

For decades, EPA has failed to implement and enforce the CWA and require the Corps obtain NPDES permits. In 2009, following a high-profile oil spill at The Dalles Lock and Dam (The Dalles Dam), the Corps submitted an NPDES permit application for The Dalles Dam. Over eleven years later, EPA has not issued an NPDES permit for The Dalles Dam or any other federal dam on the Columbia or Snake river.

In 2013, Riverkeeper sued the Corps for discharging oil and other pollution from eight Columbia and Snake river dams in violation of the federal CWA. The lawsuit addressed oil pollution at the following dams: Bonneville, The Dalles, McNary, Ice Harbor, Lower Monumental, Little Goose, and Lower Granite. In 2014, Columbia Riverkeeper and the Corps reached a legal settlement whereby the Corps agreed to apply for NPDES permits. The settlement included three key components.

- The Corps agreed to investigate switching from conventional oils to Environmentally Acceptable Lubricants (EALs) at the Dams and, if technically feasible, use EALs. Compared to conventional lubricants, EALs are less harmful to fish and other aquatic life. EALs are less toxic, biodegrade, and do not bioaccumulate in aquatic life. The settlement agreement called for the Corps to complete this assessment within twelve months of the agreement, *i.e.*, by August 2015, and "to switch to using one or more EALs as a lubricant on the in-water equipment where the Corps has determine[d] doing so is technically feasible" within eighteen months of the Settlement Agreement, *i.e.*, by February 2016.

- The Corps agreed to apply for pollution discharge permits from EPA and the Oregon Department of Environmental Quality (DEQ).

- The Corps agreed to account for and reduce oil pollution from the Dams while state and federal agencies developed pollution permits. Oil Accountability Plans track the addition, and then the removal, of all oil and grease to the Dams and account for the difference.

In 2018, EPA developed draft NPDES permits for nine federal dams.[26] On December 19, 2018, EPA requested CWA Section 401 certification for nine federal dams from the Washington Department of Ecology. EPA also requested CWA 401(a)(2) certification from DEQ. The nine draft NPDES permits would authorize discharges from cooling water, equipment, floor drains, sumps, facility maintenance water, and other miscellaneous discharges.[27]

On February 1, 2019, EPA abruptly withdrew its request for 401 certifications. EPA provided no explanation for its decision. Notably, EPA's decision to withdraw the requests for 401 certification came one day after *The Seattle Times* ran a front-page story describing the temperature crisis on the Columbia and Snake rivers and Ecology's 401 certification authority for the nine federal dams.[28]

EPA delayed issuance of the Draft Permits for over a year without disclosing to the states, tribal nations, or the public any rationale for delaying permit issuance. Moreover, Commenters cannot identify any significant revisions to the 2018 Draft NPDES Permits that explain EPA's decision to delay issuance of the Draft Permits. Furthermore, EPA provides no rationale for delaying issuance of the Grand Coulee Dam NPDES Permit. Commenters call on EPA to proceed with issuing the eight Draft Permits in 2020 and hold a public comment periods on the NPDES Permits for Grand Coulee and Chief Joseph dams.

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[26] EPA initially requested preliminary certifications for federal dams in letters to Ecology dated September 19 and 20, 2018, and October 4, 2018.

[27] The Corps applied for NPDES permits for eight dams (the four lower Columbia and four lower Snake) in 2015, and the U.S. Bureau of Reclamation applied for a NPDES permit for Grand Coulee Dam in 2017.

[28] Lynda Mapes, *Washington state to regulate federal dams on Columbia, Snake to cool hot water, aid salmon,* The Seattle Times (Jan. 31, 2019); *see also* Lynda Mapes, *EPA ices Washington state's effort to regulate hot water in Columbia, Snake rivers,* The Seattle Times (Feb. 6, 2019).

COMMENTS

I. Effluent Limitations.

A. EPA Must Revise the Draft Permit to Include Technology-Based Effluent Limits that Incorporate the Use of Environmentally Acceptable Lubricants.

EPA must revise the Draft Permits to: (1) explicitly require the use of environmentally acceptable lubricants (EALs) as a technology-based effluent, and (2) ensure EPA oversight of EAL selection and use at the hydroelectric facilities. Commenters support EPA's decision to include an EAL Plan in the Draft Permits. However, EPA must revise the Draft Permits to ensure the agency is not authorizing an illegal self-regulatory scheme.

The EAL Plans constitute technology-based effluent limits, yet EPA fails to comply with the CWA and implementing rule requirements for technology-based effluent limits.[29] The Draft Permits describe the EAL Plan requirement in Special Condition II.C.1–2, which state:

1. The permittee must select Environmentally Acceptable Lubricants (EALs) for all oil to water interfaces including wicket gates, bearings, lubricated wire ropes, Kaplan runners and other in-line equipment, unless technically infeasible. EALs should be consistent with the definition of EPA's 2011 report, Environmentally Acceptable Lubricants. For purposes of requirements related to EALs, technically infeasible means that no EAL products are approved for use in a given application that meet manufacturer specifications for that equipment; products which come pre-lubricated (e.g., wire ropes) and have no available alternatives manufactured with EALs; or products meeting a manufacturer's specifications are not available.

2. The permittee must prepare an EAL Annual Report under Part II.C.1 and describe the implementation and feasibility of EALs.[30]

EPA does not include any approval or disapproval mechanism for EAL Plans. First, EPA's decision to abandon its regulatory role vis-à-vis the EAL Plans runs afoul of the CWA.[31] EPA must review and approve plans; if it neglects this duty, the agency creates an impermissible self-regulatory scheme. Special Condition II.C. fails to include any review and approval procedure by EPA. Second, EPA must afford the public an opportunity to review and comment on the draft EAL Plans. The EAL Plans constitute "effluent limitations," which the public has a statutory

[29] EPA should revise the Draft Permits to clarify that BMP Plans constitute technology-based effluent limits.

[30] Draft John Day Permit at 15.

[31] *See e.g.*, *Environmental Defense Center, et al. v. EPA*, 344 F.3d 832 (9th Cir. 2003) (*EDC*).

right to review and offer comment upon.[32] Commenters urge EPA to revise the Draft Permits to include new terms specifying EPA's review and approval role, as well as the opportunity for public notice and comment.

EPA's treatment of EALs in the Draft Permit marks a notable departure from EPA's treatment of EALs in the NPDES Vessel General Permit for Discharges Incidental to Normal Operation of a Vessel (VGP).[33] Under the VGP, EPA requires that permittees use EALs where technologically feasible to reduce pollution to waters of the U.S. The VGP includes a series of EAL-related requirements and categorizes those terms as "technology-based effluent limitations and related requirements."[34]

EPA never explains why the Draft Permits fail to address EALs in a manner similar to the VGP. Like vessels regulated under the VGP, hydroelectric facilities interface with the aquatic environment and are known sources of oil pollution. Moreover, hydroelectric facilities in the Pacific Northwest—including the facilities regulated under the Draft Permits—and around the world are utilizing EALs to reduce toxic pollution in aquatic ecosystems.[35] EPA must revise the Draft Permits to include robust terms, similar to the VGP, that require—unless technologically infeasible—the use of EALs at hydroelectric facilities as a technology-based effluent limitation.

B. EPA Must Revise the Permit to Include Temperature Effluent Limits for Cooling Water Discharges.

i. EPA must address the reasonable potential analysis for temperature.

Under 40 C.F.R. §122.44(d)(1)(i), when issuing permits and setting effluent limits, EPA must determine if a pollutant has the reasonable potential to cause a violation of water quality standards. This assessment is commonly referred to as a reasonable potential analysis (RPA) and is required whenever a permit is originally issued or renewed. The RPA is typically included as an appendix to the permit. To comply with §122.44(d)(1)(i), EPA must perform an RPA for all pollutants that will or may be discharged from facilities seeking coverage. If the RPA shows that this discharge has the potential to violate water quality standards for any pollutant, EPA must include effluent limits for the pollutant in the NPDES permit.

[32] *See* 33 U.S.C. 1342(b)(3), *see also EDC*, 344 F.3d at 856.
[33] EPA Vessel General Permit for Discharges Incidental to Normal Operation of a Vessel, Appendix A at 143 (2013) (hereafter VGP). The VGP expired in 2018, but remains in effect. *See* EPA Vessel General Permit Website, https://www.epa.gov/npdes/vessels-vgp.
[34] *See* VGP at Section 2 ("Effluent Limits and Related Requirements").
[35] *See* Exhibits 1 and 2.

EPA's Draft Permit Fact Sheets summarily dismiss the need for temperature effluent limits *without* conducting RPAs.[36] Instead, EPA states:

> Cooling water receives heat from equipment that is being cooled, and through this exchange, heat is added to cooling water from hydroelectric generating facilities. Heat from cooling water may also be present in drainage sumps that receive cooling water, though temperature effects are likely to be minimal given the amount of cooling water compared to drainage water.[37]
>
> ***
>
> As previously explained, the Lower Snake River is impaired for temperature. Effluent temperature data are limited, but based on these data and analysis shown in Table 10, discharges from the facilities have minimal impact on Lower Snake River temperatures. However, because temperature is important to threatened and endangered salmon in the Lower Snake River, the EPA is proposing year-round monitoring for temperature including:
>
> - continuous monitoring for any discharges with cooling water and monthly monitoring where a similar discharge already has continuous monitoring.
> - continuous influent monitoring on cooling water for main units and large transformer units with continuous effluent monitoring.
>
> The hydroelectric generating facilities are also required to submit a Temperature Data Report with the next permit application that includes temperature data from each outfall expressed as 7DADM, monthly average, and daily maximum. These temperature monitoring requirements will apply at all of the facilities. The EPA believes this additional information is necessary to inform the next permit renewal cycle to better assess the impacts from the permitted discharges on temperature in the Snake River.[38]

The Fact Sheets' explanation for temperature permit conditions does not meet the minimum requirements of an RPA. Instead, EPA effectively issues temperature variances or use attainability analyses (UAAs) without meeting the CWA implementing regulations for those compliance offramps.[39] The Draft Permits therefore fail to comply with the CWA.

[36] EPA's website subpages for the Draft Permits do not contain appendices with RPAs for temperature.
[37] Fact Sheet for Lower Snake River Dams at 45–46; Fact Sheet for Lower Columbia River Dams at 45–46. The Fact Sheet for the Lower Columbia River Dams notes that McNary Dam does not contain cooling water discharges.
[38] *Id.*
[39] *See* 40 C.F.R. §§ 131.10(g) (describing UAAs); 131.14 (describing variances).

First, EPA had ample time to conduct RPAs for the Dams. The Corps submitted an NPDES permit application for The Dalles Dam in 2009 and NPDES permit applications for the remaining Dams (including a supplemental application for The Dalles Dam) in 2015. EPA therefore had five years to request the temperature monitoring that EPA now requires in the Draft Permits and uses as an illegal proxy for temperature effluent limits. EPA cannot substitute temperature monitoring for effluent limits, especially when the receiving water is not meeting water quality standards for heat pollution.

Second, EPA fails to explain why it cannot conduct RPAs with the temperature data submitted in the permit applications. Assuming *arguendo* that EPA lacks adequate data, EPA cannot substitute temperature monitoring over an entire permit term for an RPA and effluent limits. For example, EPA could: (1) require temperature monitoring during the first six months or year of the permits, and (2) include a reopener to conduct RPAs based on the temperature data collected by the Corps, and (3) based on the RPAs, amend the permits to include temperature effluent limits. As EPA is aware, the agency's five-year permit terms frequently result in lengthy permit-term extensions. In turn, EPA's decision to delay temperature RPAs, and associated temperature effluent limits, until the next permit term could result in a decade or more before EPA adopts temperature effluent limits. At a minimum, the Dams will not be subject to temperature effluent limits for five years. EPA must conduct an RPA and revise the Draft Permits to include temperature effluent limits.

ii. EPA must incorporate temperature effluent limits for discharges into impaired waters.

When discussing temperature effluent limits, the EPA states that the Draft Permits only includes monitoring requirements for temperature, citing that "Effluent temperature data are limited, but based on these data and analysis shown in Table 11, discharges from the facilities have minimal impact on Columbia River temperatures."[40] We are concerned with the accuracy of this statement given the lack of support as required by regulations (see previous comment on RPAs) as well as the fact that the eight hydroelectric facilities are located on waters listed on the 303(d) list for temperature and subject to a forthcoming temperature total maximum daily load (TMDL).

EPA must issue a temperature TMDL for the Columbia and Lower Snake River on May 18, 2020. That should include wasteload allocations (WLA) for the Dams' cooling water

[40] Lower Columbia River Dams Fact Sheet at 46.

discharges.[41] Accordingly, EPA must revise the Draft Permits to include such WLAs. If the temperature TMDL does not have WLA for the hydroelectric facilities, it would jeopardize the legality of the TMDL but EPA would still be required to assess the assimilative capacity of these impaired waterbodies to ensure thermal discharges from the eight facilities' cooling water discharges will not cause or contribute to a violation of water quality standards. The Draft Permits must include end-of-pipe thermal limits set at the applicable water quality standard. Anything less stringent would be in violation of not only the forthcoming TMDL but also the CWA.

C. EPA should regulate heat pollution added to the Columbia and Snake rivers by the Dams' impoundment of large, shallow reservoirs.

Even though the Dams cause significant heat pollution that routinely causes or contributes to water quality violations, the Draft Permits do not regulate heat pollution from the Dams, except for cooling water discharges.[42] Commenters urge EPA to evaluate and include effluent limits and permit conditions that address *all* of the heat pollution that the Dams add to the rivers.

As written, the permits would not control the discharge of heat over or through the Dams, even though EPA is currently writing a TMDL to address precisely this source of pollution. This is inconsistent with Section 301(a) of the CWA, 33 USC § 1311(a), which prohibits the addition of any pollutant from any point source to waters of the United States unless authorized by a NPDES permit.[43] Heat is a pollutant;[44] dams are point sources;[45] and the Columbia and Snake rivers meet any definition of the waters of the United States. The only outstanding question is

[41] EPA, *Guidelines for Reviewing TMDLs under Existing Regulations Issued in 1992*, p. 3 (May 20, 2002) ("EPA regulations require that a TMDL include WLAs, which identify the portion of the loading capacity allocated to individual existing and future point source(s) (40 C.F.R. §130.2(h), 40 C.F.R. §130.2(i)).").
[42] Lower Columbia River Dams Fact Sheet at 18 ("The permits do not address waters that flow over the spillway or pass through the turbines. *See National Wildlife Federation v. Consumers Power Company*, 862 F.2d 580 (6th Cir. 1988); *National Wildlife Federation v. Gorsuch*, 693 F.2d 156 (D.C. Cir. 1982).").
[43] *See generally* Enion, M. Rhead, *Rethinking National Wildlife Federation v. Gorsuch: The Case for NPDES Regulation of Dam Discharge*, 38 *Ecology Law Quarterly* 4, pp. 797–850. (2011).
[44] 33 U.S.C. § 1362(6).
[45] *Nat'l Wildlife Fed'n v. Gorsuch*, 693 F.2d 156, 165 n.22 (D.C. Cir. 1982) ("The pipes or spillways through which water flows from the reservoir through the dam into the downstream river clearly fall within th[e] definition" of point sources.)

whether the Dams cause an "addition" of heat to the rivers, and EPA has answered that question in the affirmative.[46] EPA's reliance on the *Gorsuch* decision[47] is unavailing. *Gorsuch* is distinguishable on the facts,[48] and its reasoning has not convinced subsequent courts.[49] Neither does the Water Transfer Rule support EPA's position, as EPA expressly disclaimed that its rule applies to dams.[50] The reasoning in *LA County Flood Control District* also cannot save EPA's failure to properly apply the NPDES program because that decision was premised on the intervening point source *not* adding a pollutant to the water.[51] Here, by EPA's own admissions, the Dams and reservoirs cause the addition of heat pollution to the rivers.

As demonstrated by empirical evidence and EPA modeling, the presence and operation of the Dams warm the Columbia and Snake rivers to unsafe levels for designated beneficial uses.[52] Temperatures are also increasing over historical levels due to the impacts of climate change. During the summer, the rivers are frequently so warm that salmon are unable to migrate upriver to spawn. When river temperatures exceed 20°C for several days at a time—as happens with increasing frequency due to climate change—salmon have difficulty migrating upstream and begin succumbing to stress and disease. According to the Fish Passage Center, "[U]nder a climate change scenario, the long-recognized and largely unaddressed problem of high water temperatures in the [Columbia and Snake rivers] becomes an ever-increasing threat to the survival of salmon."

In the early 2000s, EPA completed a draft Columbia and Snake River TMDL. The temperature TMDL is a pollution budget designed to protect salmon from hot water in the

[46] *E.g.* EPA, *Columbia River Temperature TMDL: State and Tribal Meetings PowerPoint Presentation*, Slides 32, 44 (January 2020) (Explaining that the dams are the "biggest source" of heat pollution and that "Each of the four Snake River dams and John Day contribute to temperature impairments . . . throughout the [summer and fall].")
[47] Lower Columbia River Dams Fact Sheet at 18.
[48] The discussion of temperature pollution in *Gorsuch* focused on reservoirs that merely stratified the heat that already existed in the river when it entered the reservoir; in the Columbia and Snake river reservoirs, however, little to no stratification occurs and the reservoirs themselves accumulate additional heat pollution.
[49] *See, e.g., Greenfield Mills, Inc. v. Macklin*, 361 F.3d 934, 947–48 (7th Cir. 2004).
[50] National Pollutant Discharge Elimination System (NPDES) Water Transfers Rule, 73 Fed. Reg. 33,697, 33,705 (June 13, 2008).
[51] *L.A. Cty. Flood Control Dist. v. NRDC, Inc.*, 568 U.S. 78, 82–83 (2013).
[52] *See, e.g.*, EPA, *Columbia River Temperature TMDL: State and Tribal Meetings PowerPoint Presentation* (January 2020) (Commenters incorporate this document, and EPA's forthcoming temperature TMDL, into the record for these NPDES permits. Commenters are not submitting these documents to EPA due to size constraints and because these documents are already in EPA's possession).

Columbia and Snake rivers. Notably, EPA's modeling clearly indicated that the Dams increase water temperatures in ways that cause or contribute to water quality standard violations, and EPA concluded that "The majority of the temperature increases (as much as 6 °C) are caused by the larger dams[.]"

Despite decades of litigation, federal agencies have not complied with the Endangered Species Act, CWA, or recovered the Columbia Basin's once-mighty salmon runs. The decline of Columbia Basin salmon runs contributes to the starvation of Southern Resident orcas and forced significant curtailment of fall salmon and steelhead fishing in the Columbia and Snake rivers in 2018 and 2019. Washington listed the Columbia and Snake rivers as impaired by high temperatures in 1994, and Washington asked EPA for a temperature TMDL over 20 years ago. EPA should use its authority under the CWA to protect and restore salmon, Pacific lamprey, sturgeon, Sothern Resident orcas, and other species threatened with extinction.

II. Monitoring and Reporting.

A. EPA Must Specify Reporting Frequency for Visual Observations.

EPA fails to specify the required frequency for observing discharges subject to effluent limitations under Section I.B.4. Under 40 C.F.R. § 122.48, NPDES permits must specify monitoring methods, intervals, and frequency. *See also* 40 C.F.R. 122.44(i). The Draft Permits state:

> The permittee must not discharge a visible oil sheen, floating, suspended or submerged matter of any kind in concentrations causing nuisance or objectionable conditions or that may impair the beneficial uses of the receiving water. There shall be no foam other than in trace amounts. The permittee must observe the surface of the receiving water in the vicinity of where the effluent enters the surface water. The permittee must maintain a written log of the observation which includes the date, time, observer, and whether there is presence of a visible oil sheen, floating, suspended or submerged matter. The log must be retained and made available to the EPA or Ecology.[53]

The Draft Permits fail to specify the method, interval, and frequency of visual observation. Commenters prepared a summary log of oil releases at the Dams over the last five years. These logs demonstrate the need for express requirements to detect oil and grease discharges at the Dams. In short, EPA must revise the Draft Permits' visual observation terms to comply with the CWA's monitoring and reporting requirements.

[53] Draft Permit for the John Day Dam at 7.

B. EPA Must Review and Approve BMP Plans and Provide for Public Notice and Comment on the Plans.

BMP Plans constitute technology-based effluent limits, yet EPA fails to comply with the CWA and implementing rule requirements for technology-based effluent limits.[54] Specifically, the Draft Permits lack review and approval requirements and opportunities for public comment. EPA must review and approve plans; if it neglects this duty, the agency creates an impermissible self-regulatory scheme. Second, EPA must afford the public an opportunity to review and comment on the draft plans because the plans constitute "effluent limitations," which the public has a statutory right to review and offer comment upon.[55] Commenters urge EPA to revise the Draft Permits to include new terms specifying EPA's review and approval role, as well as the opportunity for public notice and comment.

C. EPA Must Revise the Permit to Increase the Frequency of BMP and EAL Plan Compliance Reporting.

All NPDES permits must include monitoring and reporting requirements sufficient to ensure compliance with the permits' limitations. 40 C.F.R. § 122.44(i)(1). The Draft Permits requires that the Corps submit BMP and EAL Plan Reports once per year. Annual reporting undercuts the agency's oversight of permit compliance and ability to prioritize inspections based on current BMP Plan compliance. EPA's reporting requirement also undercuts the public's ability to understand pollution discharges from the facilities and review permit compliance. Citizen action is a "proven enforcement tool" that "Congress intended [to be used…] to both spur and supplement government enforcement actions."[56] Commenters urge EPA to revise the Draft Permit to increase BMP Plan Report frequency to at least four times per year (*i.e.,* quarterly reporting).

In addition, EPA should revise the Draft Permits to require specific reporting measures to detect oil spills and leaks. Many of the discharges cannot be sampled, including those from the wicket gates and the turbine hubs via blade packing. However, the Corps can conduct internal mass balance reports to determine if, and how much, oil is lost from the system.

[54] EPA should revise the Draft Permits to clarify that BMP Plans constitute technology-based effluent limits. *See e.g., EDC,* 344 F.3d 832.

[55] *See* 33 U.S.C. 1342(b)(3), *see also EDC,* 344 F.3d at 856.

[56] CWA Amendments of 1985, Senate Environment and Public Works Comm., S.Rep. No. 50, 99th Cong., 1st Sess. 28 (1985).

III. Protecting Fish from Cooling Water Intakes

EPA should reconsider its approach to permitting the Dams' cooling water intake structures. As an over-arching matter, the Fact Sheets and Permits appear to conflate gates that allow water into the Dams' turbines with the ports or other structures that actually draw water out of the river to cool the powerplants' internal machinery. The former are probably not cooling water intake structures within the meaning of CWA Section 316(b); nevertheless, most the permits' requirements for cooling water intake structures appear to apply to the turbine intakes (if only to duplicate existing requirements derived from CRSO Biological Opinions). The actual ports or diversions that withdraw water from the river to cool mechanical processes within each dam are, contrary to EPA's "interpretation" of its Section 316(b) regulations, cooling water intake structures subject to the rule. The final NPDES permits should clarify the difference and apply the requirements of CWA Section 316(b) to the actual cooling water intakes to prevent the illegal entrainment and impingement of endangered salmonids and other fish.

CONCLUSION

Commenters request that EPA revise the Draft Permits to ensure compliance with the CWA and protect the Columbia and Snake rivers.

Sincerely,

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Evaluation of Environmentally Acceptable Lubricants (EALS) for Dams Managed by the U.S. Army Corps of Engineers

by Victor F. Medina

PURPOSE: The purpose of this study is to provide a preliminary assessment of Environmentally Acceptable Lubricants (EALs) for application in dams that are managed by the U.S. Army Corps of Engineers (USACE). The assessment will explore the environmental aspects of these lubricants and will also discuss their operational characteristics. This assessment is primarily through the literature available on this topic, and includes interviews with various experts.

BACKGROUND

Affected Dams. This project will focus on eight (8) dams in Washington State and Oregon:

- Bonneville
- John Day
- McNary
- The Dalles (Figure 1)
- Ice Harbor
- Lower Monumental
- Little Goose
- Lower Granite

Of these dams, three are reported to already have used EALs: Bonneville, John Day and The Dalles.

Structures. The settlement focuses on the application of EALs on "in-water" structures. These include wicket gates for hydropower turbines, navigation locks, and fishway equipment. The purpose of the assessment is to determine whether EALs could be safely used without compromising the target equipment. By in-water nature, the focus is primarily on greases, but other in-water lubricants could be affected.

Figure 1. The Dalles Dam, spanning the Columbia River between Washington state and Oregon.

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14. ABSTRACT
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LUBRICANTS

Purpose. Lubricants are used on moving surfaces and have several purposes, which are summarized by USACE (1999), EM 1424, and the USACE lubrication manual, which is currently being revised. Lubricants serve to reduce friction, making movement operations easier and less energy intensive, and they reduce wear on affected surfaces and dissipate heat. They also provide a protective barrier to oxidation, thereby reducing corrosion. Additionally, they can provide insulation, transmit chemical power, and seal against dirt, dust, and water.

Lubricants work by serving as a lower viscosity material between moving surfaces. The wearing surfaces are replaced by a material with a lower coefficient of friction. Any material that accomplishes this can serve as a lubricant, but the most common substances are oil and grease.

Types of Lubricating Oils/Greases

Mineral Oils. Typical lubricants are composed of petroleum fractions called mineral oils (Haus et al. 2001, Nagendramma and Kaul 2012). Mineral oil derivations are generally effective for most lubricating applications, and their performance is usually considered as a baseline for comparison in most studies. Mineral oils are also the least expensive of the lubricating materials, even lower cost than vegetable oils. Mineral oil lubricants can biodegrade, but the process is generally slow, and the toxicity of mineral oils tends to be problematic. However, used mineral oil lubricants can be recycled in certain applications.

Bio-based lubricants (Vegetable Oils). Biobased lubricants, often referred to as vegetable or plant oils or biolubricants, are lubricants derived from natural sources with minimal modification (Salimon et al. 2012). Vegetable oils are the most common and include canola oil, castor oil, palm oil, sunflower seed oil, sesame seed oil, rapeseed oil, soybean oil and coconut oil (Durak 2004, Jaydas and Prabhakaran Nair 2006, Miller et al. 2007, Nagendramma and Kaul 2012, Salimon et al. 2012). Tall oil is derived from trees and typically recovered during paper milling. Technically, animal oils also can be used, and historically, whale oil was a very effective lubricant. However, there are no animal oil lubricants on the market at this time. All of these sources generally have their lubricating properties derived from triglyceride esters (Nagendramma and Kaul 2012, Figure 2). Biobased lubricants have some limitations, particularly at low temperatures, but in the right application, their performance can actually match or even exceed that of mineral oils (Anand and Chhibber 2006). Furthermore, biobased lubricants can be modified thermally or chemically to improve certain performance characteristics. Biobased lubricants generally biodegrade quickly and are usually far less toxic than mineral oils. In fact, in most cases, biobased lubricants are the most environmentally friendly option.

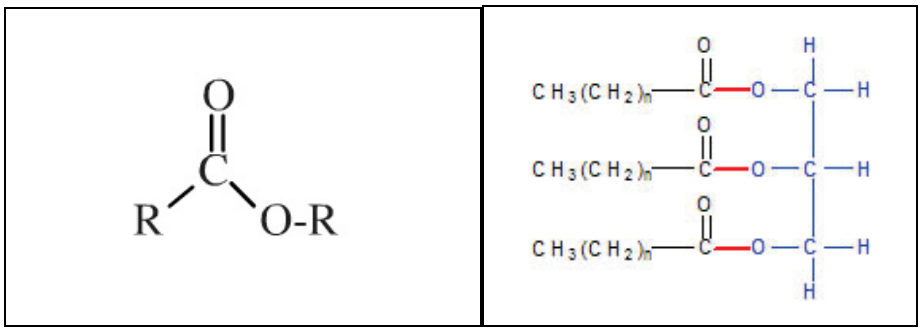

Figure 2. A generalized ester bond and a triglyceride ester (the common structure in biolubricants).

Synthetic Lubricants. Synthetic lubricants are formulated via chemical synthesis to create materials with desirable properties for lubrication (Nagendramma and Kaul 2012, USACE 1999). Chemicals used in synthetic lubricants can be derived from petroleum or from plant sources. Synthetic lubricants can be formulated to have properties far superior to mineral oil lubricants, and they can be synthesized precisely, so as to have unparalleled consistency of properties. Furthermore, it is possible to include labile structures that facilitate biodegradation while reducing toxic exposures compared to mineral oil lubricants. However, synthetic lubricants are significantly more expensive than either mineral-oil- or vegetable-oil-derived lubricants (Nagendramma and Kaul 2012, USACE 1999).

Synthetic Esters. Synthetic esters are lubricants generally derived from biological or petroleum sources, which are chemically modified to form a wider range of synthetic esters (Nagendramma and Kaul 2012, Figure 2 shows a basic ester structure). Synthetic ester-based lubricants are often derived for very high performance applications, such as racing and jet engines. They are also widely used for military applications, because they can be formulated to last far longer than mineral oil or biolubricants. They can be very expensive, however.

Polyalkaline Glycols (PAGs). PAGs are derived from petroleum sources, but are modified to form glycols (Beran 2003, Nagendramma and Kaul 2012, Figure 3). Overall, PAGs make up the smallest category of lubricants.

Polyalphaolefin (PAO) lubricants. PAO lubricants are synthetic oils that have been widely developed for a variety of uses, and have been used for many years. However, recent formulations have been developed to meet environmental performance criteria.

Additives. Lubricating oils typically include additives that can improve performance (Herdan 1997). These include oxidation inhibitors (anti-oxidants), rust inhibitors, extreme pressure agents, antiwear agents, and friction-reducing materials (Duzcukoglu and Acaroglu 2010, USACE 1999, Wright 2008). However, these additives can also affect the environmental effects of the lubricants, most commonly making them worse (particularly by increasing their toxicity). However, sometimes environmentally acceptable materials can be used as additives, improving the overall environmental friendliness of the product (Durak 2004).

Figure 3. An idealized polyalkaline glycol (PAG) structure.

Blends. Different lubricating materials can be blended together to create new lubricant combinations that combine the strengths of the different materials. Blending can be effective, but it is also a complex process. Not all lubricating materials are miscible in others; thus when creating blends, one must consider compatibilities of the different stock materials.

Grease. Grease is a semi-fluid to a solid mixture designed for lubrication, and consists of a base oil, thickener(s), and additives (USACE 1999). The base oil (discussed in the sections above) actually provides the lubricating properties. Grease also contains thickeners, which are often referred to as soaps that act like a sponge that holds the lubricant together (USACE 1999, Wright 2008). These are generally solids or semi-solids to make the lubricant more thick, like a paste material. Metal soaps based on lithium, aluminum, clay, polyurea, sodium, and calcium are most common. Complex thickeners can be composed of metal soaps mixed with low-molecular-weight organic acids. Non-soap thickeners are sometimes used for high-temperature applications, and include bentonite and silica aerogels. Additives are generally added to customize performance.

Greases can differ in consistency based on their formulation, and these differences can be used in customizing their applications. The National Lubricating Grease Institute (NGLI) has a rating system that is called the NGLI consistency number or the NGLI grade. These range from 000 to 6, with a range from cooking oil to cheddar cheese. The most common greases used in the dam projects are from 0 to 3, which range from brown mustard to vegetable shortening. NGLI 2 is the most common consistency, and is termed “normal grease,” and has a consistency of peanut butter.

Greases are particularly useful for applications that run intermittently and for external applications. The thickener helps the lubricant stay in place without a containment system. The in-water applications specified by the Riverkeepers’ settlement are best served by greases.

Lubrication Needs of Dams. Dams use a very wide range of equipment that requires lubrication; as a result, dams use large amounts of lubricants and commonly have large quantities of lubricants on site. Turbines and electrical generating equipment use large quantities of lubricating oils. In-water structures, like wicket gates and lock gates, use greases. There are boats and maintenance equipment as well. Environmental releases of the lubricants are, apparently, common. These can be intentional, as in the case of in-water use of a lubricant, or unintentional, as in the case of a spill.

Environmental Effects of Lubricant Releases. It has been estimated that 40 kilotons of lubricating oils of all kinds are released into the environment annually (Bartz 1998). Betton (2010) estimated that 15% of lubricants used in the European Union are either unaccounted for or even intentionally released into the environment. Etkin (2010) estimated that a combination of leaks and operational releases of lubricating oils into marine waters reach a level of 36.9 to 61 million liters annually — about 1.5 times the size of the Exxon-Valdez oil spill — moreover, the cost of the environmental damage was estimated at $322 million (Etkin 2010).

Brunner and Salmon (1997) documented that oil and lubricant leaks from hydroelectric dams are a significant environmental risk, and they developed a model to assess risk for dams in Canada. Similarly, Verlind et al. (2004) reported that concerns over lubricating oil releases in Sweden led to research to develop new Kaplan runners for their turbines that reduced and even — in some cases — eliminated lubricating oil use. The Riverkeepers reported significant releases of oils of all kinds from dams on the Columbia and Snake Rivers (Johnson 2014). Reported leaks of up to 1,680 gallons are mentioned, and some of the leaks were reported to contain polychlorinated biphenyls (PCBs), which are highly regulated and very resistant to biodegradation (Johnson 2014).

ENVIRONMENTALLY ACCEPTABLE LUBRICANTS

Definition. "Environmentally friendly lubricants" is a loose term that defines a lubricant that would be expected to have a neutral-to-slightly-negative (within an acceptable level) impact on the environment if released. The term "Environmentally Acceptable Lubricant" (EAL) is a restrictive term that implies that the product has met certain requirements. The USEPA (2011) defines EALs as meeting specific, albeit broad, criteria for biodegradation, aquatic toxicity, and bioaccumulation (these are discussed in more detail in subsequent sections). Furthermore, the USEPA definition is particularly targeted for marine usages of lubricants, although its definitions could be applied to other usages. USACE (1999) discusses EALs in Chapter 8.

The EPA also defines EALs in its requirements of vessel general permit requirements (VGP) (USEPA 2013, see Appendix A). The definition is essentially identical to that found in 800-R-2-002, although some additional details are provided concerning testing. Therefore, we can determine that any grease certified to meet VGP requirements is an EAL.

Generally, it is assumed that mineral oil lubricants do not meet EAL requirements and that biolubricants are essentially EALs. However, the general definition of an EAL does not specify the composition of the lubricant; although some of the labeling programs do consider this (see Other Factors and Labeling sections).

Biodegradability. Biodegradability measures the breakdown of the chemical structure of the lubricant by microorganisms (USEPA 2011). Two types of biodegradation are identified in evaluating lubricants. Primary biodegradation is the loss of one or more active groups that reduces or eliminates the toxicity of the lubricants. Ultimate biodegradation is the mineralization of the compounds to carbon dioxide and water. Compounds that are inherently biodegradable are those that can degrade in any test, and those that are readily biodegradable show a fraction of removal within a specified time frame. Table 1 summarizes tests commonly used to determine the biodegradability of chemicals, and which are or can be used to assess lubricants.

Table 1. Commonly used test methods for measuring biodegradability (adapted from Willing 2001 and USEPA 2011).

Test Type	Test Name[a]	Measured Parameter[b]	Pass Level (degradation greater or equal)	Method[c]
Readily biodegradable[d,e]	DDAT	DOC	70%	OECD 301A
	Strum test	CO_2	60%	OECD 301B
	MITI test	DOC	70%	OECD 301C
	Closed bottle	BOD/COD	70%	OECD 301D
	MOST	DOC	70%	OECD 301E
	Sapromat	BOD/COD	60%	OECD 301F (OECD 2012 for all OECD tests)
	Shake flask test	CO_2	60%	EPA 560/6-82-003 (USEPA 1982b)
	Strum test	CO_2	60%	ASTM D-5864-11 (ASTM 2011)
	BODIS test	BOD/COD	60%	ISO 10708 (ISO 1997)
Hydrocarbon degradability	CEC test	Infrared Spectrum	80%	CEC L-33-A-934
Screening	CO_2 headspace	CO_2	60%	ISO 14593 (ISO 1999)

a DDAT = DOC Die away test, MITI – Ministry of Trade & Industry, Japan, MOST = Modified OECD Screening Test, BODIS = BOD of insoluble substances
b DOC = dissolved organic carbon, BOD = biochemical oxygen demand, COD = chemical oxygen demand
c OECD = Organization of Economic Cooperation and Development, EPA = U.S. Environmental Protection Agency, ASTM = ASTM International, ISO = International Organization for Standardization, CEC = Coordinating European Council.
d Tests that show a specific target degradation (implies mineralization) within a specific time period.
e Each of these tests also can be used to determine inherent biodegradability – if 20% biodegradation is observed during the test period.

Mineral oils typically biodegrade, but the processes are slow and may be incomplete. EALs tend to biodegrade faster and more completely, with vegetable oils in particular showing rapid rates (Aluyor et al. 2009). Battersby (2000) studied the degradation of various lubricating oils using the CEC L-33-A-93 test, and found that vegetable oils were >95% degraded in 21 days, while mineral oils range from 4 to 57% in the same time period. In general, the following pattern is found for biodegradability:

Mineral oil < Polyalkaline glycols < Synthetic esters < Biolubricants (Vegetable Oils)

Aquatic Toxicity. The second criterion that an EAL must meet is low aquatic toxicity. Like biodegradability, there are a number of toxicity tests that can be applied (Table 2).

Table 2. Aquatic toxicity tests applicable for EAL evaluation (Adapted from USEPA 2011).

Test & Species	OECD Number[a]	EPA Equivalent[b]
72 hour growth inhibition test, alga	201	EG-8
Acute immobilization test, Daphnia sp.	202	EG-1
Acute toxicity test, fish	203	EG-9
Prolonged toxicity test: 14 day study, fish	204	
Respiration inhibition test, bacteria	209	
Early-life stage toxicity, fish	210	
Reproduction test, Daphnia magna	211	
Short-term toxicity on embryo & sac-fry states, fish	212	

a OECD 2013
b Source: USEPA 1982a (EPA 560/6-82-002)

In general, mineral oil lubricants have relatively high toxic effects, while PAGs, synthetic esters, and biolubricants have low toxic effects. PAGs, however, can have higher levels of toxicity in some cases, due to their increased solubility resulting from the glycol groups.

Bioaccumulation. The third criterion that an EPA-defined EAL must meet is that it must be below certain thresholds for bioaccumulation. Bioaccumulation can be directly measured by exposing organisms to the contaminant, then measuring uptake. However, this type of measurement is complicated by the wide variety of environmental factors that can affect uptake. Furthermore, in the case of organic constituents, these can be transformed and degraded in the target organism, making measurements difficult. Finally, tests with organisms can be expensive. Because of these reasons, surrogate measurements have become more common when it comes to measuring bioaccumulation. In particular, the octanol-/water-partitioning coefficient (K_{ow}) is the common basis for assessing bioaccumulation. In a K_{ow} test, a chemical of interest is placed in a container containing both water and octanol, and the solution is vigorously mixed. The ratio of the contaminant in the octanol and in the water is then measured. Since differences frequently span orders of magnitude, K_{ow} is typically presented as a logarithmic scale (log K_{ow}).

Log K_{ow}s for marine environments tend to vary between 0 and 6. Substances with Log $K_{ow} < 3$ tend not to bioaccumulate, while those with $K_{ow} > 3$ area are considered as bioaccumulating. OECD 107 and 117 are common methods used to measure K_{ow} values for EAL purposes (OECD 2013a).

Other Considerations. Other considerations include the environmental fate of the material, such as its attenuation (particularly biodegradability) and its transport characteristics. Some assessments also factor in environmental effects related to the production of the lubricant: Are greenhouse gas emissions generated? Is the material made of renewable sources? Does the product contain hazardous or dangerous materials? Still other assessments factor in circumstances such as public perception of the lubricant material and stakeholder acceptance.

Labeling. There are several labels that have been developed that are generally accepted as defining a lubricant as an EAL. These include:

- Blue Angel – A label developed by Germany, which has now been accepted internationally as an acceptable standard. (*http://www.ecolabelindex.com/ecolabel/blue-angel*)
- Swedish Standard – A label developed by Sweden.
- Nordic Swan (Nordic Ecolabel) – A label jointly developed by Iceland, Norway, Denmark, Sweden, and Finland. Nordic swan is meant to consider the entire product life cycle. (*http://www.nordic-ecolabel.org/*)
- European Eco-label – Developed by the European Union (*http://ec.europa.eu/environment/ecolabel/*)
- OSPAR – Developed by the OSPAR commission to protect the Northeast Atlantic Ocean and its resources. (*http://www.ospar.org/*)

Table 3 summarizes the criteria for these labels.

Table 3. Criteria for labeling programs for EALs.

Labeling Program	Biodegradability	Aquatic Toxicity	Bioaccumulation	Other
Blue Angel	OECD 301B-F (Ultimate biodegradation) or CEC L-33-A-934 (primary biodegradation)	OECD 201-203	OECD 305 A-E or Kow	Dangerous materials, technical performance
Swedish Standard	ISO 9439	NA	None	Renewable content
Nordic Swan	NA	OECD 201-202	None	Renewable content, technical performance
European Eco-label	OECD 301 A-F (ultimate biodegradation), OECD 302C, or ISO 14593	OECD 201 & 202 (acute) and OECD 210 or 211 (chronic)	OECD 107, 117, or 123 (Kow for organic compounds) or OECD 305	Dangerous materials, restricted substances, renewable content, technical performance
OSPAR	OECD 306 (degradation under marine conditions)	Marine toxicity to 4 species	OECD 117 or 107 (Kow)	

Other labels may be acceptable, or a testing regiment could be presented to show that a lubricant meets EAL requirements. Modified assessment tools are available (Cunningham et al. 2004).

Recycling. Lubricants of all kinds can be recovered and recycled, which is a positive environmental practice (Betton 2010), but not all uses allow for these activities. Specifically, in-water lubrication does not allow for recycling.

Performance. Table 4 summarizes performance of EALs to mineral oil (polyaklylene glycols are PAGs, polyalpaole phines are PAOs, and dicarboylic acid ester and neopental polyesters are synthetic esters). EALs generally perform well compared to mineral oil lubricants. EALs typically are more mechanically durable and have superior lubricating properties (Pai and Hargreaves 2002). Mineral oils, however, tend to have better low temperature performance and have strong corrosion resistance.

Table 4. Performance of EALs as compared to Mineral Oil lubricants (adapted from Bartz 1998).

	Min. Oil	Polyalpha	Polyalkyl	DAE	N Polyest	Rape Seed
Viscosity Temperature Behavior (VI)	4	2	2	2	2	2
Low Temperature Behavior (Pourpoint)	5	1	3	1	2	3
Liquid Range	4	2	3	1	2	3
Oxidation Stability (Aging)	4	2	3	2/3	2	5
Thermal Stability	4	4	3	3	2	4
Evaporative Loss (Volatility)	4	2	3	1	1	3
Fire Resistance, Flash Temperature	5	5	4	4	4	5
Hydrolytic Stability	1	1	3	4	4	5
Corrosion Protection Properties	1	1	3	4	4	5
Seal Material Compatibility	3	2	3	4	4	4
Paint & Lacquer Compatability	1	1	4	4	4	4
Miscibility with Mineral Oil		1	5	2	2	1
Solubility of Additives	1	2	4	2	2	3
Lubircating Properties, Load Carrying Capacity	3	3	2	2	2	1
Toxicity	4	3/4	1/2	1/2	1/2	1
Biodegradability	4	3/4	1/2	1/2	1/2	1
KEY: 1 = excellent, 2 = very good, 3 = good, 4 = moderate, 5 = poor.						
Min. Oil = Mineral oil, Polyalpha = polyalphaolephines, polyalkl = polyalkyleneglycols, DAE = dicarboxylic acid esters						
N Polyest = Neopental polyesters, Rape seed = rape seed oil						
Adapted from Bartz (1998)						

In looking over the properties presented in Table 4, it is interesting to focus on the properties that would be most critical for in-water lubrication. These include oxidation stability (aging), evaporative loss (volatility), hydrolytic stability (reactions with water), and corrosion protection properties. In focusing on these, we see that — with some exceptions — EALs tend to outperform mineral oils in oxidative stability and evaporative loss. However, mineral oils outperform most EALs in terms of hydrolytic stability, low temperature performance (pour point), and corrosion protection (Aluyor et al. 2009).

It is clear from the literature that EALs are very effective, and can be used for most mineral oil applications. However, it is disappointing that some of the weaknesses of EALs (hydrolytic stability, low temperature performance, and corrosion protection) are incompatible with in-water application requirements. The limitations given in Table 4 are nonetheless generalizations for most products. Fortunately, there is a wide range of EAL products, and some have been developed that work better at low temperatures and have better hydrolytic stability (Birova et al. 2002, Erhan et al. 2006). For example, coconut oil has shown to be better at low temperature applications than most other vegetable oils (Jaydas and Prabhakaran Nair. 2006). Additives can also be used to improve

performance (Erhan et al. 2006, Karmakar and Ghosh 2013), although these may also have undesirable environmental effects (Herdan 1997). Modification of vegetable oils via processes like epoxidation and hydroxylation can also improve low temperature performance and oxidative resistance, while maintaining high biodegradability (Arumugam et al. 2012, Sharma et al. 2006). Another strategy could be to investigate or even develop blends of existing mineral oils that have been proven to be effective and more readily biodegradable materials, to develop a mixture that meets EAL requirements (Nagendramma and Kaul 2012). For example, Haus et al. (2001) studied 32 mineral oil bases and found biodegradation ranged from 15 to 75%. Increasing aromatic and/or polar contents can increase biodegradability. Therefore, choosing the more biodegradable mineral oil stocks could meet EAL requirements for biodegradability, bioaccumulation, and toxicity. Ultimately, testing would be recommended to determine whether any lubricant replacement meets the protective needs of the equipment.

EALs have been used extensively in full-scale applications for decades. Pearson and Spagnoli (2000) documented on the order of a dozen applications ranging from pump applications, hydraulic oil applications, sewage outfall applications, maintenance of golf course equipment, and construction equipment maintenance – all with successful long-term performance.

Water Washout. In-water structures in dams may be subjected to strong water currents and cavitation. In particular, violent water currents can occur in the draft tubes that house the wicket gate bearings. ASTM D1264 is the standard test for evaluating water washout resistance of lubricating greases (ASTM International 2012).

Costs. Table 5 summarizes base costs of EALs in comparison with mineral oil-based lubricant. This table is generalized, in fact, some synthetic ester formulations can cost 20 times more than their mineral oil equivalent (Nagendramma and Kaul 2012).

Table 5. Cost comparison of EALs to mineral oil (adapted from USEPA 2011).

Lubricant Base Oil	Cost Ratio to a Comparable Mineral Oil Base Lubricant Cost
Bio-based lubricants (Vegetable oils)	1.2
Synthetic ester	2 to 3
Polyalkylene glycols	2 to 3

These comparisons indicate that EALs are more expensive than mineral oil-based lubricants. However, this is only a comparison of the base costs. There are other life-cycle costs that might change the overall cost comparison. For example, in many cases, EALs can actually last longer and outperform mineral oils (see above), which could result in lower quantity requirements. Other factors could be environmental management costs, which would likely be favorable for EALs. On the other hand, recycling benefits might be more favorable for mineral oils. Furthermore, costs of bio-based lubricants (vegetable oils and synthetic esters) can become more competitive with petroleum-based mineral oils as petrochemical costs increase (Aluyor et al. 2009).

Miller et al. (2007) performed a life-cycle analysis (LCA) on a proposed replacement of a mineral oil lubricant with a soybean-based lubricant for an aluminum manufacturing facility. Although the

soybean lubricant was somewhat more expensive, this factor was offset because the use rate for the vegetable oil was actually lower than that for the mineral oil. The LCA also assessed overall environmental impact. The soybean oil had positive effects on the release of climate change constituents and reduced fossil fuel usage, but it did have the potential for overall increases in nutrient releases to the environment, which could have a negative, eutrophicating impact.

Start up. A key factor in considering a replacement material is its miscibility with the existing mineral oil lubricant. If the replacement lubricant had good miscibility, then it could simply be added as a makeup material over the existing lubricant. This saves the need to clean the surface, which might require the shutdown of the system during the cleaning. Consequently, in the short term, miscibility compatibility could be a very valuable parameter. However, if a replacement lubricant has significant advantages, then it might turn out to be better to go through the cleaning step if it is not compatible with the existing lubricant. Fortunately, some types of EALs tend to be highly miscible with mineral oil (Table 4). In particular, rape seed (vegetable) oil and polyalphaolefins (PAOs) have excellent miscibility with mineral oil while synthetic esters have good miscibility. PAGs, on the other hand, are not compatible to most mineral oils.

EAL testing for Dam Application. Some studies have been conducted on hydroelectric dam EAL applications. Hanna and Pugh (1998) conducted a Bureau of Reclamation study looking at environmentally acceptable alternatives to mineral oil. Food-grade greases, which are greases approved for incidental contact with food, but that do not necessarily meet EAL criteria, did not perform well. Two EAL greases, conversely, performed comparably (and in one case, significantly better) to a lithium-based mineral oil product. Darr (2002) discusses actual applications of EALs at Parker Dam in CA. Particular success was found with a canola-based VSG product (which was one of the products tested by Hanna and Pugh). As discussed above, The Dalles and and John Day reportedly used EALs, and data provided by Redman (2014) also indicates that an EAL is used on Dworshak's wicket gates. USACE 1999 indicated that the Huntington and Nashville Districts used EALs in lock-gate operations.

Alternatives to Lubricants in Dams. There are alternatives to using either mineral oil or EAL lubricants for in-water structures. First, a water-lubricated process could be used. This essentially means that no lubricant is used, only the surrounding water. Hanna and Pugh (1998) evaluated water lubrication and found that torque to move the test structure approximately doubled, and wear was expected to increase. Another alternative is to use self-lubricating surfaces. These are essentially coated surfaces in which the lubricant is incorporated into the parent material, which reduces friction and wear. There are plans to use self-lubricating structures on replaced pintle bearing bushings in lock structures in The Dalles dam (Ingram 2011). The Little Goose, Lower Monumental, Bonneville and McNary Dams also have self-lubricating bearings installed on some of their in-water structures (USACE 1999). These reduce operating costs and have an environmentally friendly benefit of not having any need for grease applications. However, this approach requires the replacement of the equipment, which is very expensive (on the order of tens of millions of dollars, USACE 2012 gives major lock renovation costs for numerous locks in the Rock Island District). There is also concern that self-lubricating bearings may actually need to be replaced sooner than conventional brass bearings.

LUBRICANTS IN THE COLUMBIA RIVER DAMS: Redman (2014) prepared a white paper on the lubricating practices of the six dams operated by the Walla Walla District (McNary, Ice Harbor, Lower Monumental, Little Goose, Lower Granite, and Dworshak). The following sections are based on this document.

In-Water Lubrication Structures for Walla Walla Dams. Two primary structures were identified requiring in-water lubrication: wicket gates and pintle bearings. Wicket gates are structures that control the amount of water flowing through the intake tunnel (penstock) through the hydroelectric turbine (Zimesnick 2010, Figure 4). As gates are opened, the turbines spin faster, generating more electricity. Wicket gates can be partially closed to slow down energy production during low-energy use periods and completely shut to allow for maintenance on the turbines.

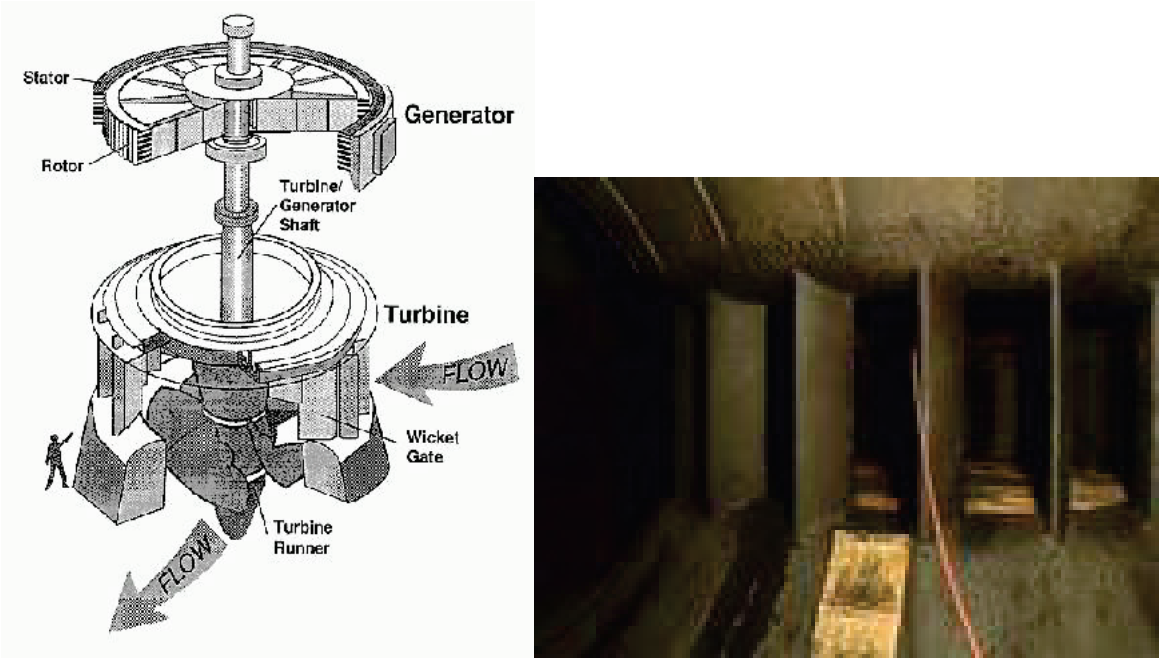

Figure 4. Schematic and picture of wicket gates (Parker Dam, Lake Havasu, CA).

Pintle bearings are hinge-like devices that support the weight of the gate and allow the gates to swing open and shut (Figure 5). These bearings are found on locks to allow shipping to navigate the dam and on gates that allow the dam to release water when needed. These have commonly been grease-lubricated bronze bearings, although self-lubricated bearings are becoming more prevalent.

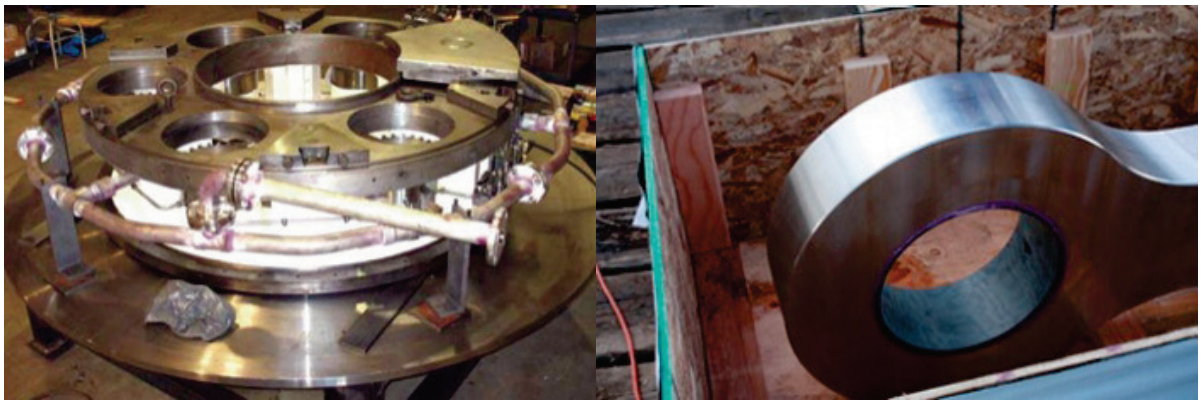

Figure 5. Pintle gate bearing (from the Rock Island Dam) and bushing (a self-lubricating bushing from The Dalles Dam).

One point to consider is the sheer size of the structures under discussion. Figure 6 is a lock gate that is undergoing repairs at The Dalles dam. The size is massive.

Figure 6. Repairs conducted on a lock gate at The Dalles Dam.

In-Water Lubricants Used for Walla Walla District-Managed Dams. Table 6 summarizes lubricating materials used for the wicket gates and pintle bearings for the Walla Walla Dams. One of these is classified as an EAL, ECO Fluids VSG Wicket Gate Grease (although this lubricant does not have associated bioaccumulation test data), although the Chevron FM ALC EP2 Food Grade is a foodgrade material (see section below).

Table 6. In-water lubricants used for Walla Walla district-managed dams (from Redmon 2014).

Dam	Wicket Gates	Pintle Bearings
McNary	Chevron Ultra Duty EP NGLI-0	Chevron Ultra Duty EP NGLI-0
Ice Harbor	Chevron Ultra Duty EP NGLI-0	Chevron Ultra Duty EP NGLI-0
Lower Monument	Chevron Ultra Duty EP NGLI-1	N/A
Little Goose	Chevron Ultra Duty EP NGLI-0	Chevron Ultra Duty EP NGLI-0
Lower Granite	Chevron FM ALC EP2 Food Grade	Chevron FM ALC EP1 Food Grade
Dworshak	ECO Fluids VSG Wicket Gate Grease	N/A

Table 7 summarizes the properties of these lubricants and Mobil 100 SHC Series EAL greases, which are used at The Dalles. The first two lubricants on the table are conventional mineral oil lubricants (Chevron Ultra Duty EP NGLI-0 and Chevron Ultra Duty EP NGLI-1). The next two are food-grade-quality greases, but are also mineral-oil-based and are not EALs (Chevron FM ALC EP1 Food Grade and Chevron FM ALC EP2 Food Grade). The last three greases (Mobil EAL 101 and 102 and VSG) are EAL greases. The Mobil greases are synthetic esters, while the VSG product is canola oil, bio-based grease. The EAL greases are comparable to the mineral oil greases for most of the data given, although the Mobil greases have a somewhat lower Four Ball Weld Pt forces (VSG is comparable). In a critical measure for in-water use, %Washout, the EALs have excellent numbers, particularly the VSG grease. This very preliminary assessment suggests that EAL products are available that can perform comparably to mineral oil greases.

Food Grade Lubricants. Redman (2014) reports that several dams use food-grade lubricants (Chevron FM ALC EP2 Food Grade) as environmentally friendly lubricants. However, these materials are not documented as EALs. Food-grade materials may not meet EAL criteria, such as biodegradability or toxicity. However, some food-grade materials do meet EAL standards. If there is a food-grade material of strong interest, then it should be possible to conduct basic testing to determine whether these meet EAL requirements — and if so — have then classified as such.

VSG Wicket Gate Grease. VSG Wicket Gate Grease is an EAL that is used at Dworshak Dam, which is a Walla Walla district-managed dam. General information on VSG is provided on the ECO Fluid website at (*http://fluidcenter.com/vsg.html*, see *http://fluidcenter.com/pdf/vsgtechdata.pdf* for a download of its technical sheet). VSG is a canola oil-based lubricant with a benign calcium sulfanate thickener that is readily biodegradable, and is designed for hydroelectric dam applications. It reportedly meets all performance standards. VSG reportedly offers excellent corrosion protection and is resistant to grease line plugging. It has excellent low temperature pumpability, yet stiffens upon water contact, allowing it to stay in bearing. VSG grease has an ASTM D-1264 washout loss (at 79.4 C, 175 F) of 1.21%. VSG is reportedly compatible with more lithium-based mineral oil greases. VSG is more expensive than most comparable mineral oil lubricants, but according to ECO Fluid, the small amounts needed annually mean that the actual increased costs assuming equivalent usages are minimal. Furthermore, some users have indicated that they actually use less VSG lubricant than they previously used, resulting in a net savings. The VSG product is equivalent to one of the EALs tested by Hanna and Pugh (1998) and used at the Parker Dam in CA (Darr 2002).

Table 7. Properties of in-water lubricants used in Walla Walla district-managed dams (from Redman 2014).

			Lubricant				
Properties	**Ultra Duty EP NGLI-0**	**Ultra Duty EP NGLI-1**	**FM ALC EP1**	**FM ALC EP2**	**Mobil SHC 101 EAL**	**Mobil SHC 102 EAL**	**VSG Wicket Gate Grease**
NLGI Number	**0**	**1**	**1**	**2**	**1**	**2**	**1**
Operating Temp, F Min Max	-15 270	-15 350	-4 325	-4 325			
Penetration @ 77 F	370	325	280	325	325	280	325
Dropping Pt, F	342	491	500	500	356	356	480
Four Ball Weld Pt. kgf	315	500	500	500	200	200	400
Four Ball Wear Scar, mm	0.45	0.43	0.60	0.60			0.42
Timken OK Load, lb	55	70	40	40			55
Water Washout, wt%	15	7			8.0	6.5	1.21
Lincoln ventmeter, psig @ 30 @ 70 F 30 F 0 F	100 200 1700	-- 250 975					20 110 42
Copper corrosion	--	1B			1A	1A	1B
Thickener, % Type	5.6 Lithium	7.0 Lithium complex	6.9 Aluminum complex	7.7 Aluminum complex	Lithium	Lithium	-- Calcium sulfanate
ISO Viscosity	460	320			100	100	
Kinematic Viscosity cST @ 40 C	400	383	200	200			

Mobil Oil EALs. Redman (2014) identified EALs manufactured by Mobil that might also be useful for the Columbia River Dams; the Mobil SHC 100 EAL series (see *http://www.mobil.com/USA-English/Lubes/PDS/GLXXENGRSMOMobil_SHC_Grease_100_EAL_Series.aspx*). The series consists of two products, 101 and 102 (Table 7). The SHC 100 series are designed to be high-performance greases to be used in environmentally sensitive applications, and both the 101 and 102 products are registered EALs. The SHC 100 series are synthetic ester formulations and are reportedly readily biodegradable. Both were tested using the OECD 203 aquatic toxicity test (OECD 2013b), and were "virtually non-toxic." Furthermore, both are specifically designed for in-water use for marine equipment, water treatment plants, and dams, locks, and waterways. As such, they have good adhesion and water resistance properties and offer excellent rust and corrosion protection. Both products use lithium thickeners, which are compatible with current lubricants used in the dams.

Huskey Specialty Lubricants ECOLube EP2 & Hydrolube. Huskey Specialty Lubricants produces two green lubricants that might be appropriate for in-water dam use: Ecolube EP2 and Hydrolube (see *http://huskey.com/PRODUCTS/IndustrialGreases/igrl/1/app/igrl*). Ecolube EP2 is a vegetable oil fortified by anti-oxidant, pressure, and anti-wear and anti-corrosion additives, and can be used in high- and low-temperature conditions (see *http://huskey.com/Product/item/12/Ecolube-EP2* for a specifications sheet). It is classified as readily biodegradable and contains no ozone-depleting chemicals, no SARA (Superfund Amendment and Reauthorization Act) Title 313 chemicals, no heavy metals, no greenhouse gases, no chlorine, no phenols, no volatile organic compounds, and no Proposition 65 chemicals. It is acceptable for use where incidental food or potable water contact may occur. Water washout data is not provided for Ecolube EP 2.

Hydrolube (see *http://huskey.com/Product/item/66/Hydrolube* for a specifications sheet) is particularly designed for high pressure, underwater environments found in hydroelectric dams. Like Ecolube, it does not contain any problematic chemicals or metals and is rated for incidental food and potable water contact. It comes in four grades, and has ASTM D1264 water washout values ranging from 0 to 1%, depending on the grade.

CONCLUSIONS/RECOMMENDATIONS: The following conclusions were drawn from this study:

- EALs can reduce the environmental impacts of in-water lubricant usage due to lower toxicity and higher biodegradability.
- The performance of EALs is comparable to mineral oil lubricants. In some areas, EALs can significantly outperform mineral oils lubricants. However, each lubricant type has relative strengths and advantages. Considering the focus on in-water use, EALs tend to outperform mineral oils in oxidative stability and evaporative loss, but mineral oils appear to have performance advantage in hydrolytic stability and corrosion protection. It appears likely that EALs will be able to meet the requirements needed for in-water uses.
- Two products in particular are promising. VSG Wicket Gate Grease is already being used at Dworshak Dam and has a history of effective use. And the Mobil SHC series 100 EALs are greases designed for in-water use and appear to have strong performance characteristics. Both the VSG and the Mobil products appear to be compatible with the lithium-thickened greases currently used.

- The base costs of EALs are higher than those of mineral oil lubricants. The EALs base costs can be as low as 1.2 times — or even as high as 4 times — higher than mineral oil base costs. Some reports even indicate that high performance synthetics can be up to 20 times higher. However, it is likely that life cycle costs of EALs are more competitive — and even advantageous — in some cases compared to mineral oils.

The following recommendations are proposed:

- ERDC should be prepared to conduct any testing to support EAL certification for any lubricant that is not labeled, but that could be a good choice for the northwest dams. Testing could be conducted on the food-grade greases currently used at Lower Granite Dam. Similarly, the Huskey Hydrolube is a promising grease product that is designed to be environmentally friendly, but is not categorized as an EAL. Testing could be performed to allow its use in order to meet the conditions of the settlement.
- Laboratory testing and field demonstrations may be warranted for new EAL application. ERDC could lead or assist in these studies.
- EALs are generally more expensive. However, in many cases, EALs can last longer than conventional lubricants, and EALs may not require the environmental management costs associated with mineral oils. Life cycle analysis would be a valuable tool to use for assessing the overall costs associated with EAL use as compared to those associated with conventional mineral oil grease use.

ADDITIONAL INFORMATION: This technical note was prepared by Victor F. Medina, Ph.D., P.E., Research Engineer, Environmental Laboratory, U.S. Army Engineer Research and Development Center. The study was conducted as an activity of the Water Operations Technical Support (WOTS) program. For information on WOTS, please contact the Program Manager, Dr. Pat Deliman, at *Patrick.N.Deliman@usace.army.mil*. This technical note should be cited as follows:

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MEMORANDUM FOR RECORD

SUBJECT: *Columbia Riverkeeper v. USACE*, No. 2:13-md-2494-LRS (E.D. Wash.) Settlement Agreement

Per the subject Settlement Agreement attached to the court's order of dismissal without prejudice entered on August 14, 2014, the Corps has obligations due by February 14, 2016, pertaining to the use of Environmentally Acceptable Lubricants (EALs) and the implementation of Oil Accountability Plans at the Bonneville, The Dalles, John Day, McNary, Ice Harbor, Lower Monumental, Little Goose, and Lower Granite dams on the Columbia and Snake Rivers. Following is a summary of the status of the Corps' fulfillment of those obligations.

a. Environmentally Acceptable Lubricants (EALs).

Paragraph 4(a) of the Settlement Agreement required the Corps to "complete an assessment of whether it is technically feasible to switch from using grease as a lubricant on certain 'in-water' equipment, including wicket gates for the hydropower turbines, navigation locks and certain fishway equipment, to using one or more EALs as a lubricant on such equipment . . .." The Settlement Agreement called for the Corps to complete this assessment within twelve months of the Settlement Agreement, *i.e.*, by August 2015, and "to switch to using one or more EALs as a lubricant on the in-water equipment where the Corps has determined that doing so is technically feasible" within eighteen months of the Settlement Agreement, *i.e.*, by February 2016.

The Settlement Agreement provides that "[t]he Corps' evaluation of technical feasibility will be confined to the question of whether one or more EALs can be used without risk of potential damage to the equipment." The Corps completed assessments by August 2015 and, due to the risk of potential damage to the equipment, determined that it was not feasible at that time to switch to using EALs. Based on the assessments, the Corps concluded that further testing would be necessary to demonstrate that an EAL does not pose a risk of potential damage to the equipment. After August 2015, the Corps continued to evaluate the use of EALs on in-water equipment at the Dams, to consider whether it may be feasible to switch to using EALs in the future. As a result of that further evaluation, as explained below, the Corps has determined that it will be feasible to switch to using EALs at the next scheduled maintenance in Fiscal Year 2017 for certain non-hydroelectric in-water equipment that has a negligible or low risk of potential damage. With regard to other in-water equipment, as set forth below, the Corps has decided to perform "proof of concept" testing to ascertain whether EALs may be feasible for use in the future.

i. <u>Identification of EALs</u>

EALs were defined in the Settlement Agreement to mean "those lubricants that have been demonstrated to meet standards for biodegradability, toxicity and

bioaccumulation potential that minimize their likely adverse consequences in the aquatic environment compared to conventional lubricants, as set forth in Section 4 of EPA 800-R-11-002, 'Environmentally Acceptable Lubricants' (November 2011), and includes, but is not limited to, products labeled by [certain identified labeling programs]." In order to evaluate the feasibility of switching to EALs as provided in the Settlement Agreement, it was necessary for the Corps to perform additional research, after the Settlement Agreement was executed, to identify potentially suitable and commercially available lubricants meeting this definition.

The Settlement Agreement indicated that the Corps "already uses EALs on certain 'in-water' equipment at The Dalles and John Day dams." This statement reflected the Corps' use at those dams of the product "Mobil SHC 101 EAL," which is marketed as a grease "designed specifically for applications that require environmentally sensitive lubricants." See http://www.mobil.com/USA-English/Lubes/PDS/GLXXENGRSMOMobil_SHC_Grease_100_EAL_Series.aspx. During the Corps' assessment of the technical feasibility of switching to EALs at the dams, the Corps concluded that the Mobil SHC 101 EAL grease does not actually satisfy the criteria for "EAL" as defined in the Settlement Agreement. The "EAL" in its title stands for an "Environmental Awareness Lubricant", not "Environmentally Acceptable Lubricant." While the grease is characterized as "environmentally sensitive" or "environmentally friendly" by the manufacturer, and offers some benefits in environmentally sensitive applications, the grease is not labeled by any of the labeling programs identified in the Settlement Agreement and has not been demonstrated to meet the standards for bioaccumulation as set forth in the Settlement Agreement. Therefore, the Corps determined that different lubricants would need to be evaluated in order to satisfy the terms of the Settlement Agreement. The Corps included the in-water equipment at The Dalles and John Day dams along with the in-water equipment at the other six dams in the Corps' assessment of whether it is technically feasible to switch to EALs on certain in-water equipment.

The Corps approached the evaluation of EAL use by examining the feasibility of switching to EALs, as defined in the Settlement Agreement, on: (1) hydroelectric plant "in-water" equipment (including wicket gates for hydropower turbines) and (2) non-hydroelectric "in-water" equipment (including navigation locks and certain fishway equipment) at all eight dams. The assessments for each of these types of equipment are summarized below.

ii. Hydroelectric In-Water Equipment

The Corps contracted with HDR Engineering to assess the technical feasibility of switching to EALs on certain in-water hydroelectric plant in-water equipment. On July 28, 2015, HDR produced a report entitled "Environmentally Acceptable Lubricant Grease for Hydropower Applications." See Exhibit 1. The report identified various products that met the EAL criteria and concluded that based on laboratory data alone, switching to EALs appeared technically feasible on wicket gates. However, since there was an absence of wicket gate bushing performance history with the EAL shown to be

most compatible, the report concluded that there was some "unquantified risk of damage to the equipment." The report recommended that a "proof of concept" be completed to test a sampling of in-service equipment prior to full implementation. The report also looked at the feasibility of switching to EALs on wire ropes and recommended that further testing be done to check for compatibility issues between EALs and the in-service grease. Based on this information, the Corps concluded in August 2015 that it was not technically feasible (without risk of potential damage to the equipment) to switch to EALs at that time and that further testing and evaluation would be necessary.

The proof of concept test for hydropower wire ropes began on certain equipment at Ice Harbor in December 2015 and on certain equipment at Bonneville in January 2016. Testing will begin on other equipment at Ice Harbor in February or March 2016. The wire ropes will be monitored for 12 months. At the conclusion of the monitoring period, a determination of feasibility will be made. If deemed feasible, the Corps plans to switch to EALs on hydropower wire ropes at all eight projects. Testing of wicket gates is expected to begin in May 2016 at Lower Granite and The Dalles projects. Testing of wicket gates at Bonneville Second Powerhouse and McNary Dam is expected to follow in July and August 2016, respectively. The wicket gates will be monitored for 12 months after introducing the EAL grease. At the conclusion of the monitoring period, a determination of feasibility will be made. If deemed feasible, the Corps plans to begin switching to EALs on at each of the projects that have greased wicket gates.

iii. Non-Hydroelectric In-Water Equipment

The Corps utilized the U.S. Army Engineer Research and Development Center (ERDC) to evaluate the use of EALs on non-hydroelectric plant in-water equipment. In August 2015, ERDC produced a report entitled "Evaluation of Environmentally Acceptable Lubricants (EALs) Non-Hydropower Uses for NWD and NWW Dams." See Exhibit 2. The report found that there were EAL greases available for non-hydroelectric uses and that these EALs appeared to meet performance needs. However, the report based this conclusion in large part on the Corps' experience in using "environmentally friendly" greases, which were not demonstrated to be EALs as set forth in the Settlement Agreement. As noted in the report, the greases already in use by the Corps, such as Mobil SHC 101 EAL, were not labeled by any labeling program and lacked data for at least one of the EAL criteria. Based on this information and a lack of performance history in using EALs, the Corps concluded in August 2015 that it was not technically feasible (without risk of potential damage to the equipment) to switch to EALs at that time and that further testing and evaluation would be necessary.

After August 2015, the Corps assessed the level of risk of potential damage to various types of non-hydroelectric in-water equipment and continued to evaluate the feasibility of switching to EALs on this type of equipment. As a result of that further evaluation, in February 2016, the Corps determined that it will be feasible to switch to using EALs at the next scheduled maintenance in Fiscal Year 2017 for certain non-

hydroelectric in-water equipment that require greasing and has a negligible or low risk of potential damage, provided that the equipment is not similar to the wire ropes that are undergoing the hydropower proof of concept testing. For the non-hydroelectric wire rope equipment that is similar to the hydroelectric wire rope equipment being tested, a determination of feasibility will be made following the conclusion of that testing.

For non-hydroelectric in-water equipment that has a moderate risk of potential damage when switching to EALs, the Corps will perform a proof of concept test. The Corps expects to initiate this testing in January or March 2017, which coincides with respective scheduled fishway and navigation lock equipment outages that will be necessary to initiate the test. The equipment will be monitored for 12 months after introducing the EAL grease. At the conclusion of the monitoring period, a determination of feasibility will be made. If deemed feasible, the Corps plans to begin switching to EALs on the in-water equipment that needs greasing.

b. Oil Accountability Plans.

Per paragraph 4(b) of the Settlement Agreement, the Corps has developed reports that include a description of the results of the monitoring and any assessments that occurred during the preceding reporting period. The Corps has made those reports publically available at http://www.nwd.usace.army.mil/Missions/Environmental/OilAccountability.aspx.

FRANCES E. COFFEY
Chief, Program Support Division
Northwestern Division

Enclosures:

Edison Electric
INSTITUTE

Quinlan J. Shea, III
Vice President, Environment, Natural Resources,
and Occupational Safety & Health

May 4, 2020

Jennifer Wu
U.S. Environmental Protection Agency, Region 10
1200 Sixth Avenue Suite 155
Seattle, Washington 98101

Re: *Discharge Permits for Hydroelectric Projects in the Lower Snake and Lower Columbia Rivers*

[Submitted electronically]

Dear Ms Wu:

The Edison Electric Institute (EEI) appreciates the opportunity to submit comments on the Environmental Protection Agency's (EPA or Agency) *Proposed Discharge Permits for Hydroelectric Projects in the Lower Snake and Lower Columbia Rivers* (Proposed Permits). The Proposed Permits collectively cover eight hydroelectric generating facilities operated by the U.S. Army Corps of Engineers (Corps) and will address oil and grease discharges, pH, and cooling water discharges.

EEI is the association that represents all U.S. investor-owned electric companies. Our members provide electricity for about 220 million Americans and operate in all 50 states and the District of Columbia. As a whole, the electric power industry supports more than seven million jobs in communities across the United States. EEI member companies invest more than $110 billion dollars annually to make the energy grid smarter, cleaner, more dynamic, more flexible, and more secure in order to provide affordable and reliable electricity to customers, with more than $130 billion invested in 2019 alone.

EEI members own and operate 541 hydroelectric plants representing 27 percent of all hydroelectric plants in the country. EEI members are therefore particularly interested in the application of Clean Water Act (CWA) Section 316(b) to hydroelectric facilities in these permits. While the permits open for comment only apply to Corps facilities, EEI has significant interest in the approach used because state permitting authorities may seek or are already seeking to apply a similar approach at EEI members' facilities.

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EEI's comments focus on three primary areas: First, hydroelectric generation is important to the industry's continued clean energy transformation; second, CWA Section 316(b) should not apply to hydroelectric facilities in the absence of any nationally applicable technology-based standards; and, third, EPA should streamline and improve the case-by-case, best professional judgment (BPJ) determination procedure as applied to cooling water intake structure conditions at hydroelectric facilities.

Specifically:

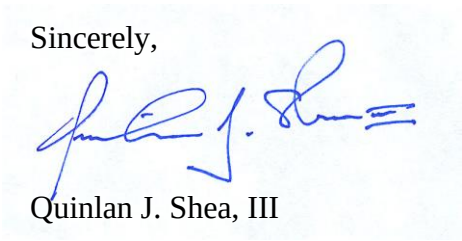
- Based on the text and history of the CWA, CWA Section 316(b) is best read to only apply through the promulgation of nationally applicable technology-based standards under CWA Section 301 or Section 306

- EPA should not interpret the 2014 316(b) Rule, including the "catch-all" provision, to apply to hydroelectric facilities

- Should EPA decide to apply the "catch-all" provision, the Agency should streamline and improve the case-by-case, best professional judgment (BPJ) determination procedure, minimize inclusion of extraneous information in the NPDES permitting process, and disavow any requirements for separate annual cooling water intake structure reporting.

EEI appreciates the opportunity to comment on the Proposed Discharge Permits for Hydroelectric Projects in the Lower Snake and Lower Columbia Rivers. Questions may be directed to Patrick McGuire (pmcguire@eei.org, 202-508-5167), Rich Bozek (rbozek@eei.org, 202-508- 5641), Riaz Mohammed (rmohammed@eei.org, 202-508-5036), or Alex Bond (abond@eei.org, 202-508-5523).

Sincerely,



Quinlan J. Shea, III

cc: Hon. David Ross, Assistant Administrator, Office of Water
Anna Wildeman, Principal Deputy Assistant Administrator, Office of Water

COMMENTS OF THE EDISON ELECTRIC INSTITUTE ON THE PROPOSED DISCHARGE PERMITS FOR HYDROELECTRIC PROJECTS IN THE LOWER SNAKE AND LOWER COLUMBIA RIVERS

May 4, 2020

The Edison Electric Institute (EEI) appreciates the opportunity to submit comments on the Environmental Protection Agency's (EPA or Agency) *Proposed Discharge Permits for Hydroelectric Projects in the Lower Snake and Lower Columbia Rivers* (Proposed Permits). The Proposed Permits collectively cover eight hydroelectric generating facilities operated by the U.S. Army Corps of Engineers (Corps) and will address oil and grease discharges, pH, and cooling water discharges. EPA, *Public Notice: Proposed Discharge Permits for Hydroelectric Projects in the Lower Snake River*, https://www.epa.gov/npdes-permits/proposed-discharge-permits-federal-hydroelectric-projects-lower-snake-river (last visited Apr. 15, 2020). EPA, *Public Notice: Proposed Discharge Permits for Hydroelectric Projects in the Lower Columbia River*, https://www.epa.gov/npdes-permits/proposed-discharge-permits-federal-hydroelectric-projects-lower-columbia-river (last visited Apr. 15, 2020). Four of the Proposed Permits are for facilities on the lower Snake River: Ice Harbor Lock and Dam (WA0026816), Lower Monumental Lock and Dam (WA0026808), Little Goose Lock and Dam (WA0026786), and Lower Granite Lock and Dam (WA0026794). The other four Proposed Permits are for facilities on the lower Columbia River: the Bonneville Project (WA0026778), the Dalles Lock and Dam (WA0026701), the John Day Project (WA0026832), and the McNary Lock and Dam (WA0026824). *See Proposed Permits for Lower Snake River. See Proposed Permits for Lower Columbia River.*

EEI is the association that represents all U.S. investor-owned electric companies. Our members provide electricity for about 220 million Americans and operate in all 50 states and the District of Columbia. As a whole, the electric power industry supports more than seven million jobs in communities across the United States. EEI member companies invest more than $110 billion annually to make the energy grid smarter, cleaner, more dynamic, more flexible, and more secure in order to provide affordable and reliable electricity to customers, with more than $130 billion invested in 2019 alone.[1] EEI's members own and operate electric power generation, transmission, and distribution facilities and assets and deliver increasingly cleaner energy to customers. As of April 2020, EEI members own and operate 541 hydroelectric plants representing 27 percent of all hydroelectric plants in the country. EEI members are therefore particularly interested in the application of Clean Water Act (CWA) Section 316(b) to hydroelectric facilities in the permits open for comment. While these permits apply only to Corps facilities, EEI has significant interest in the approach used because state permitting authorities may seek or are already seeking to apply a similar approach at EEI members' facilities.

I. Introduction And Executive Summary.

EEI's member companies are both navigating and helping lead a profound, long-term transformation in how electricity is generated, transmitted, and used. As a result, the mix of resources used to generate electricity in the United States has changed dramatically over the last decade and is increasingly cleaner. EEI's member companies invested more than $130 billion last year to make the energy grid stronger, smarter, cleaner, more dynamic, and more secure; to diversify the nation's energy mix; and to integrate new technologies that benefit customers. They

[1] See EEI, Industry Data, Statistical Highlights: Capacity and Generation (2018), https://www.eei.org/issuesandpolicy/Pages/FinanceAndTax.aspx#financialreview.

are united in their commitment to get as clean as they can, as fast as they can, while keeping reliability and affordability front and center, as always, for the customers and communities they serve.

EEI's comments focus on three primary areas: first, hydroelectric generation is important to the industry's continued clean energy transformation; second, CWA Section 316(b) should not apply to hydroelectric facilities in the absence of any nationally applicable technology-based standards; and, third, if EPA does apply 316(b) to hydroelectric facilities, the Agency should streamline and improve the case-by-case, best professional judgment (BPJ) determination procedure as applied to cooling water intake structure (CWIS) conditions at hydroelectric facilities.

II. Hydroelectric Facilities Are An Important Part Of The Clean Energy Transition.

As stated, *supra*, EEI member companies are both navigating and helping to lead a profound, long-term, and beneficial transformation in how electricity is generated, transmitted, and used. This transformation is being driven by a wide range of factors, including declining costs for natural gas and renewable energy resources, technological improvements, changing customer expectations, federal and state regulations and policies, and the increasing use of distributed energy resources. As a result, the mix of resources used to generate electricity in the United States has changed dramatically over the last decade and is increasingly cleaner. Hydroelectric power continues to be important to this mix as a carbon-free renewable energy source that releases very few pollutants, accounting for 6.6 percent of total U.S. utility-scale electricity generation and 38 percent of total utility-scale renewable electricity generation.[2] In 2019,

[2] See EIA, Hydropower Explained (March 30, 2020), https://www.eia.gov/energyexplained/hydropower/.

hydropower was second only to wind energy as the largest renewable energy source in the country.[3]

Since 2014, more than half of the industry's investments in new electricity generation have been in wind and solar generation resources,[4] and more than one-third of America's electricity now comes from carbon-free resources, including hydroelectric power.[5] The trend of increasing renewable energy deployments will continue, complemented by hydroelectric power. EIA projects that the United States will add 72 gigawatts of new wind and solar capacity between 2018 and 2021 alone, and that domestically the long-term demand for new electric generating capacity will be met by renewables and efficient natural gas as older coal-based and less-efficient natural gas-based generating units retire.[6]

Hydroelectric power also complements the energy sector as it further reduces its environmental footprint. In 2016, the National Hydropower Association estimated that hydroelectric power helps the nation avoid approximately 200 million metric tons of carbon dioxide (CO_2).[7] As of the end of 2018, the electric power sector as a whole had reduced its CO_2 emissions by 27 percent compared with near peak levels in 2005—nearly the lowest level in 30 years. EEI's member

[3] See also EIA, Frequently Asked Questions: What is U.S. Electricity Generation by Energy Source (Feb. 27, 2020), https://www.eia.gov/tools/faqs/faq.php?id=427&t=3.
[4] See EIA, Nearly Half of Utility-Scale Capacity Installed in 2017 Came from Renewables (Jan. 10, 2018), https://www.eia.gov/todayinenergy/detail.php?id=34472.
[5] See EIA, Electricity Explained: Electricity in the United States (Apr. 2018), https://www.eia.gov/energyexplained/index.php?page=electricity_in_the_united_states.
[6] See EIA, Annual Energy Outlook 2019: With Projections to 2050 (Jan. 24, 2019) at 94, 96, https://www.eia.gov/outlooks/aeo/pdf/aeo2019.pdf.
[7] National Hydropower Association, Hydropower's Vision for Growth: Fighting Climate Change Infographic (2016), http://anf5l2g5jkf16p6te3ljwwpk.wpengine.netdna-cdn.com/wp-content/uploads/2016/07/NHA-Fighting-Climate-Change.pdf.

companies have reduced their CO_2 emissions even more dramatically to approximately 37 percent below 2005 levels. These reductions will continue: EEI's member companies are on a path to reduce CO_2 emissions 50 percent by 2030 and 80 percent by 2050, compared to 2005. The energy sector has also seen significant improvements in terms of the impact on water resources as the volume of chemical discharges have decreased by nearly 82 percent in 2018 from 2005 levels.[8] Supplementing the sector's improvements regarding water resources, hydropower facilities release very few pollutants and use little cooling water. Accordingly, concurrent with the evolution of the generating mix—and the increasing reliance on cleaner resources—the nation's water quality and resources will continue to commensurately improve.

III. EPA Should Not Interpret CWA 316(b) Or The 2014 316(b) Rule, Including The "Catch All" Provision, To Apply Hydroelectric Facilities.

CWA Section 316(b) is best read to only apply through the promulgation of nationally applicable technology-based standards under CWA Section 301 or Section 306. Until recently, that appears to be the interpretation that EPA and state permit writers adopted.

A. EPA Should Not Interpret CWA Section 316(b) to Apply in the Absence of a Categorical Effluent Limitation Guideline or New Source Performance Standard for Hydroelectric Facilities.

Section 316(b) provides that "[a]ny *standard* established pursuant to section 1311 of this title or section 1316 of this title and applicable to a point source shall require that the location, design, construction, and capacity of CWIS reflect the best technology available for minimizing adverse impact." 33 U.S.C. Section 1326(b) (emphasis added). Although the term "standard" may be

[8] Based on an EEI analysis of overall discharges reported in EPA's Toxic Release Inventory (TRI) program for 2005 and 2018 from coal- and oil-fired generating facilities.

ambiguous in isolation, when read in context within Section 316, it is best interpreted to mean nationally applicable categorical standards—namely, effluent limitations guidelines (ELGs) and new source performance standards (NSPS)—promulgated under CWA Sections 301 and 306 (33 U.S.C. Sections 1311 and 1316). EPA has not promulgated either ELGs or NSPS for hydroelectric facilities in the nearly 50-year history of the CWA. Absent such standards, EPA and state permit writers should not impose Section 316(b) requirements on hydroelectric facilities, either pursuant to a national 316(b)-specific rulemaking or on a case-by-case basis. Further, as explained *infra*, EPA lacks a policy justification for applying Section 316(b) to hydroelectric facilities, by rule or otherwise, given the low likelihood such an exercise would yield any discrete environmental benefit.

Congress authorized the development of facility-specific, technology-based requirements in Section 316(a) when it authorized the imposition of technology-based "effluent *limitations* under [sections 301 and 306] for *such plant*, with respect to the thermal component of such discharge…" 33 U.S.C. Section 1326(a) (emphasis added). Congress similarly used the phrase "effluent limitations established under section 1311 of this title" in Section 316(c), when it referred to what technology-based limits should apply to "any point source of a discharge having a thermal component, the modification of which point source is commenced after October 18, 1972…" 33 U.S.C. Section 1326(c). Just as in Section 316(a), Congress in Section 316(c) used the term "effluent limitations" to refer to limits developed for an individual facility. Congress did not adopt this approach in Section 316(b), opting instead to address CWIS exclusively through the adoption of "standard[s] established pursuant to" CWA Sections 301 or 306. That is, Section 316(b) does not provide separate authority for EPA to establish unit-specific CWIS

requirements, but instead instructs EPA to include CWIS requirements when developing national ELGs and NSPS.

EPA should give effect to Congress's deliberate choice to use different terms within the same section—*i.e.*, the term "standard" in Section 316(b), as compared to its use of the term "effluent limitations" in Sections 316(a) and 316(c). Reading these subsections together, it is reasonable to conclude that Congress used the term "effluent limitations" in Section 316 to refer to requirements that can be established for particular point sources on a case-by-case basis and instead used the term "standard" to refer to nationally-applicable ELGs or NSPS for categories of point sources. *See Russello v. United States*, 464 U.S. 16, 23 (1983) ("We refrain from concluding here that the differing language in the two subsections has the same meaning in each. We would not presume to ascribe this difference to a simple mistake in draftsmanship.").

The term "effluent limitation" appears throughout the CWA and it does not always refer to source-specific limits in an individual facility's NPDES permit. However, where Congress intended the term to refer more broadly to limits applicable to entire categories or classes of point sources, it articulated that distinction. *See e.g.*, 33 U.S.C. Sections 1311(b)(2)(A) & (E) (referencing "effluent limitations *for categories and classes of point sources*") (emphasis added); *id.* Section 1317(a)(2) (authorizing EPA to publish "a proposed effluent standard . . . establishing requirements for a toxic pollutant which, *if an effluent limitation is applicable to a class or category of point sources*, shall be applicable to such category or class only if such standard imposes more stringent requirements") (emphasis added). Thus, while the precise meaning of the term "effluent limitation" depends on the context in which it is used, in Sections 316(a) and

316(c), Congress used "effluent limitation" to refer to requirements that are developed for a particular source, and it is meaningful that Congress did not use the term in Sections 316(b).

By contrast, the term "standard" is not used anywhere in the CWA to refer to a source-specific requirement. As it did with Sections 316(a) and 316(c), Congress could have triggered the application of 316(b) to any source for which any effluent limitation applies, but that is not what Congress chose to do. Instead, Congress dictated that category-wide "standard[s]" established pursuant to Sections 301 and 306 would trigger 316(b) application and should include provisions satisfying the requirements contained in Section 316(b). If, as in the case for hydroelectric facilities, there are no category-wide standards under Sections 301 and 306, permit writers should decline to apply Section 316(b) requirements.

B. EPA Should Not Interpret the 2014 316(b) Rule, Including the "Catch All" Provision, to Apply to Hydroelectric Facilities.

The *2014 Final Regulations to Establish Requirements for Cooling Water Intake Structures at Existing Facilities and Amend Requirements at Phase I Facilities* (2014 316(b) Rule), contained a "catch-all" provision that provides that "[c]ooling water intake structures not subject to requirements under this or another subpart…must meet requirements under section 316(b) of the CWA established by the Director on a case-by-case, best professional judgment (BPJ) basis." *See* 40 C.F.R. Section 125.90(b). On its face, the provision only applies to "cooling water intake structures" at "existing facilities." *See* 40 C.F.R. Section 125.90(b). This provision was not intended to expand the 316(b) universe to reach hydroelectric facilities.

The "catch-all" provision contained in the 2014 316(b) Rule is nearly identical to that proposed in 2004 for the *Proposed Regulations to Establish Requirements for Cooling Water Intake Structures at Phase III Facilities* (2004 Proposed 316(b) Rule or Proposed Phase III Rule).[9] The "catch-all" as proposed in 2004 read: "(b) Existing facilities that are not subject to requirements under this or another subpart of this Part must meet requirements under section 316(b) of the CWA determined by the Director on a case-by-case, best professional judgment (BPJ) basis." 69 *Fed. Reg.* 68,444, 68,544 (Nov. 24, 2004) (at proposed regulation text 40 C.F.R. Section 125.100(b)). In explaining the scope of the 2004 Proposed 316(b) Rule, the preamble specified that "[w]ater withdrawn for *non-cooling* purposes would include water withdrawn for warming by liquified natural gas facilities, water used to power hydroelectric plants, and water withdrawn for public water systems by desalinization facilities." *Id*. at 68,455 (emphasis added). This is the only time the word "hydroelectric" is used in the 123-page 2004 Proposed 316(b) Rule.

The absence of hydroelectric facilities from the 2004 discussion follows logically from the 25 years of practice that had proceeded the Phase I-III rulemakings, characterized by case-by-case determinations guided largely by a 1977 guidance document.[10] Hydroelectric facilities were not the focus of the 1977 guidance, just as these facilities were not the focus of the Proposed Phase III Rule. It follows that hydroelectric facilities were not the focus of the 2014 316(b) Rule. In

[9] At the time of proposal, the Phase III Rule was envisioned as the final piece of a three-part regulation, however, it was later remanded and eventually became part of the 2014 316(b) Rule.
[10] EPA's 1977 guidance provided, "The steam-electric generating point source category is the largest user of cooling water in the United States and this guidance manual is directed primarily at this category. Other categories of point source dischargers such as iron and steel and petrochemicals for which intakes withdraw a major portion for cooling water would also require such a determination." *See* EPA, Guidance for Evaluating the Adverse Impact of Cooling Water Intake Structures on The Aquatic Environment (May 1, 1977).

fact, when EPA proposed the 2014 316(b) Rule, it stated that hydroelectric facilities were outside the scope of the rule:

> Given the diversity of industrial processes across the U.S., there are many other industrial uses of water not intended to be addressed by today's proposed rule . . . Warming water at liquefied natural gas terminals, and *hydro-electric plant withdrawals for electricity generation are not cooling water uses and are not addressed by today's proposal.*

76 *Fed. Reg*. 22,174, 22,190 (Apr. 20, 2011) (emphasis added). Based on EPA's statement that hydroelectric facility withdrawals were not addressed by the proposed rule and because EPA historically had not applied Section 316(b) to hydroelectric facilities, owner/operators of such facilities appropriately concluded that nothing in their facilities would be considered to be a "cooling water intake structure" under the 2014 316(b) Rule. Accordingly, neither hydroelectric facility owner/operators nor any other party submitted public comments for the proposed 2014 316(b) Rule addressing the application of Section 316(b) to such facilities.

Against this backdrop of consistently excluding hydroelectric facilities, EPA should not now construe the 2014 316(b) Rule, nor the "catch-all" provision, to apply to hydroelectric facilities.

IV. Should EPA Apply The "Catch-All" Provision To Hydroelectric Facilities, The Case-by-Case, BPJ 316(b) Determinations Should Be Focused And Streamlined.

If EPA nevertheless decides to apply the "catch-all" provision in 40 C.F.R. Section 125.90(b) to hydroelectric facilities for which it is the permitting authority,[11] the Agency should streamline and improve the case-by-case, best professional judgment (BPJ) determination procedure,

[11] It is important to note that only the amount of water used for cooling is "cooling water," and only the part of a hydroelectric facility that extracts that water is a CWIS—not the whole facility or the whole flow through the facility. Therefore, the vast bulk of water moving through a hydroelectric facility is not subject to 316(b). Further, it is the intake that should be regulated by 316(b), not the eventual discharge.

minimize inclusion of extraneous information in the NPDES permitting process, and disavow any requirements for separate annual CWIS reporting. In light of the position discussed *supra*, EPA or other permitting authorities should also not attempt to add significant new requirements to hydroelectric facilities under Section 316(b). As a legal matter, any attempt to add any new requirements would, at minimum, require a national rulemaking to give potentially affected facilities notice and opportunity to comment.

A. EPA Should Further Clarify and Explain the Four-Factor Framework to Determine that Existing Technology is BTA.

According to the Proposed Permit draft fact sheets, EPA determined that, in light of the text, structure, history and purpose of the 2014 316(b) Rule, in the case of hydroelectric facilities, the rule is ambiguous as to application of the substantive requirements and that EPA never intended that the rule's substantive provisions would apply to them. *NPDES Fact Sheet: Lower Columbia River Permits* at 52. Rather, EPA determined that, pursuant to 40 C.F.R. Section 125.90(b), CWIS at hydroelectric facilities would henceforth be subject to best professional judgment (BPJ) Section 316(b) CWIS conditions. *Id.* at 53. The draft fact sheets include a four-factor framework for evaluating whether a hydropower facility meets BTA for purposes of CWA Section 316(b). The four factors EPA describes are: (1) efficiency of power generation; (2) cooling water withdrawn relative to waterbody volume or flow; (3) location of the intake structure; and (4) technologies at the facility. *Id.* The four factors are considered "technologies" that could minimize adverse environmental impacts from the use of a CWIS at hydroelectric facilities and EPA may use any of the four factors, or other facility-specific factors, in its BPJ analysis to determine whether BTA requirements have been satisfied. *See id.* EPA should clarify that permit writers must not view the four factors as a checklist, explaining that permit writers need not

evaluate other factors if a facility satisfies one. Further, EPA should provide greater explanation and analysis of each factor in the fact sheets and clarify what information permits applicants would need to provide to permitting authorities in order to comply.

B. Hydropower Facilities Utilize Existing Regulatory Structures That Can Satisfy BTA Requirements.

The Proposed Permit draft fact sheets explain that if permitting authorities are going to apply case-by-case BPJ determinations under 40 C.F.R. Section 125.90(b) to hydroelectric facilities subject to NPDES permitting requirements, then such facilities' existing controls are technologies that can be determined to satisfy the requirements of BTA to minimize entrainment and impingement mortality. *Id.* at 53. Further, EPA notes that it is aware that many hydroelectric facilities are required to implement measures that reduce the impacts of the dam, including the impacts to passage of aquatic life through the dam, as conditions of a FERC license or a Biological Opinion. *See id*. Given the extensive fish passage efforts that are often required, all facilities that have undergone a FERC licensing process are likely to pass EPA's four-factor test because they both factor three (intake will occur at a separate location from fish passage) and factor four (technologies employed will minimize adverse impact). Therefore, most hydroelectric facilities will already meet BTA for the purposes of Section 316(b) through other existing regulatory requirements. EPA should not build language regarding the specific fish passage technologies deployed at a given facility into the language of its NPDES permit, as there is already an effective process for identifying appropriate technologies and these technologies are usually physically unrelated to water withdrawals at hydroelectric facilities. Including language that could be construed as fish passage requirements in the permit creates additional opportunities for uncertainty—instead, fish passage measures at hydroelectric facilities should be

properly seen as measures that reduce the need for 316(b) requirements, as opposed to a means of adding requirements.

C. Additional Reporting May Not Be Warranted.

EPA's proposed addition of reporting requirements for hydroelectric facilities related to CWIS is duplicative and likely unnecessary. Because many technologies are passive, there would be little useful information for hydroelectric operators to provide in a report to any permitting authority. Rather than create additional paperwork, EPA should simply ensure that permits include an obligation to operate and maintain the withdrawal in accordance with good engineering and operating standards. This would ensure that facilities continue to address impingement and entrainment without the additional burden of unnecessary and time-consuming reporting.

D. To Impose Further Requirements EPA Would Need a National Rulemaking.

Finally, as discussed *supra,* should EPA propose to add significant new requirements to hydroelectric facilities to address impingement and entrainment under Section 316(b), the Agency must do a national rulemaking. Hydroelectric facilities differ substantially from the largely land-based steam electric plants and a national rulemaking would both provide notice to facilities and allow facilities to present EPA with information related to the technical feasibility, cost, and efficacy of applying such requirements to hydroelectric facilities.

V. Conclusion

EEI appreciates the opportunity to comment on the Proposed Discharge Permits for Hydroelectric Projects in the Lower Snake and Lower Columbia Rivers. Questions may be directed to Patrick McGuire (pmcguire@eei.org, 202-508-5167), Rich Bozek (rbozek@eei.org, 202-508- 5641), Riaz Mohammed (rmohammed@eei.org, 202-508-5036), or Alex Bond (abond@eei.org, 202-508-5523).

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May 4, 2020

By Electronic Mail

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Re: Comments of the National Hydropower Association and Northwest Hydroelectric Association on EPA Region 10's Proposed NPDES Permits for Federal Hydroelectric Facilities on the Lower Columbia and Lower Snake Rivers

Dear Ms. Wu:

The following comments are submitted on behalf of the National Hydropower Association ("NHA") and the Northwest Hydroelectric Association ("NWHA") (collectively, the "Associations"). The comments relate to EPA Region 10's proposed NPDES permits for four federal hydroelectric facilities on the Lower Columbia river (Bonneville Project, Permit No. WA0026778; The Dalles Lock and Dam, Permit No. WA0026701; John Day Project, Permit No. WA0026832; and McNary Lock and Dam, Permit No. WA0026824) and four federal hydroelectric facilities on the Lower Snake river (Ice Harbor Lock and Dam, Permit No. WA0026816; Lower Monumental Lock and Dam, Permit No. WA0026808; Little Goose Lock and Dam, Permit No. WA0026786; and Lower Granite Lock and Dam, Permit No. WA0026794) (collectively, the "Proposed Permits").

NHA is a non-profit national association dedicated exclusively to advancing the interests of the United States hydropower industry, including conventional, pumped storage, and new hydrokinetic technologies. NHA promotes the role of hydropower as a clean, renewable, and reliable energy source that advances national environmental and energy policy objectives. NHA's membership consists of more than 240 organizations, including public power utilities, investor-owned utilities, independent power producers, project developers, equipment manufacturers, environmental and engineering consultants, and attorneys.

NWHA is a non-profit trade association that represents and advocates on behalf of the Northwest hydroelectric industry. NWHA has over 135 member companies from all segments of the industry. NWHA is dedicated to the promotion of the Northwest region's waterpower resources as a clean, efficient and cost-effective source of energy while protecting the fisheries and environmental quality that characterize the region.

In the United States, hydropower facilities provide about 6 to 7 percent of the nation's total electric generation and pumped storage hydropower plants provide the vast majority of energy storage, approximately 97 percent. The membership of the Associations includes companies with facilities in EPA Region 10, including in the state of Washington. Although our members are not directly affected by the Proposed Permits, our members have a vested interest in the underlying analysis supporting those permits as it pertains to hydropower facilities generally. In particular, the analysis makes broad statements regarding the scope and applicability of Clean Water Act ("CWA") §316(b) that affect all hydropower facilities to the extent they are represented to reflect EPA policy, and are relied on by other EPA regions and state permit writers.

Specifically, the Associations' comments are focused on special condition E, "Cooling Water Intake Structure (CWIS) Plan and CWIS Annual Reports," imposed pursuant to §316(b) of the CWA and EPA's 2014 implementing regulation.[1] *See* NPDES Fact Sheet, USACE Lower Columbia River Hydroelectric Generating Permits at 52 ("Lower Columbia River Fact Sheet");[2] NPDES Fact Sheet, USACE Lower Snake River Hydroelectric Generating Permits at 51 ("Lower Snake River Fact Sheet") (collectively, the "Fact Sheets"). According to this special condition and the discussion in the Fact Sheets for these Proposed Permits, EPA asserts that federal hydroelectric facilities must meet §316(b) requirements established by EPA on a case-by-case, best professional judgment basis under 40 C.F.R. § 125.90(b).

The Associations' position, set forth in greater detail below, is that:

1. The language and legislative history of §316(b) demonstrate that it does not apply to hydroelectric facilities, and thus special condition E and all related language in the Fact Sheets and Proposed Permits should be removed;

2. EPA's 2014 §316(b) implementing regulation does not apply to hydroelectric facilities;

3. The comprehensive regulatory framework that applies to hydroelectric facilities, and in particular the FERC licensing process, already addresses impingement and entrainment;

4. Clarification is needed regarding the four-factor test outlined in the Proposed Permits; and

5. The requirement for separate reporting on CWIS should be removed.

[1] Final Rule to Establish Requirements for Cooling Water Intake Structures at Existing Facilities and Amend Requirements at Phase I Facilities, 79 Fed. Reg. 48,300 (Aug. 15, 2014) ("2014 Regulation").
[2] Although the Proposed Permit for McNary Lock and Dam does not include this condition, it includes a requirement to submit annually a CWIS report which EPA should remove.

I. CWA §316(b) Requirements Do Not Apply to Hydroelectric Facilities, and Thus the Conditions Relating to §316(b) Should Be Removed from the Proposed Permits.

Section 316(b) of the Clean Water Act must be read in context with the entirety of Section 316, which is focused on thermal discharges. Section 316(a) is focused on establishing effluent limitations for the heat contained in wastewater discharges; §316(b) is focused on the large withdrawals that are used by steam electric generating and industrial facilities for cooling purposes and that generate the thermal discharges. The two sections represent the two sides of the same coin. When reviewed together, the language demonstrates that the basis for this provision was to address impacts associated with steam electric generating facilities, more specifically facilities that employ the steam cycle.[3]

Even if read independently of §316(a), the text of §316(b) does not support EPA's imposition of §316(b) conditions on hydroelectric facilities. The plain language of §316(b) indicates that it applies only where EPA establishes nationally applicable standards under CWA §301 (effluent limitations) and §306 (new source performance standards) for point sources. To illustrate, §316(b) reads as follows:

> Any standard established pursuant to section 1311 [301] of this title or section 1316 [306] of this title and applicable to a point source shall require that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact.

33 U.S.C. § 1326(b).

The use of the word "standards" in §316(b) is significant. EPA has established technology-based effluent limitation guidelines and new source performance standards for multiple source categories that generally discharge large volumes of water. But EPA has not issued any such standards for hydroelectric facilities. Establishing such standards for hydroelectric industry would not be reasonable given the *de minimis* nature of their discharges.

And, as noted above, §316(b) must be read in context with the entirety of §316. Sections 316(a) and 316(c) use the term "effluent limitations,"[4] contrasting with the use

[3] The legislative history of Section 316(a) explains that the focus of this provision was on steam-electric generating plants as the "major source of the discharges of heat." House Consideration of the Report of the Conference Committee (Oct. 4, 1972), *reprinted in* 1 A LEGISLATIVE HISTORY OF THE WATER POLLUTION CONTROL ACT AMENDMENTS OF 1972, at 263 (1973) (statement of Rep. Clausen).

[4] The language of §316(a) authorizes the imposition of technology-based "effluent limitations under [sections 301 and 306] for such plant, with respect to the thermal component of such discharge…" 33 U.S.C. § 1326(a) (emphasis added). Similarly, §316(c) includes the phrase "effluent limitations established under section 1311 of this title" in §316(c), when it referred to what technology-based limits should apply to "any point source of a discharge having a thermal component, the modification of which point source is commenced after October 18, 1972… ." 33 U.S.C. § 1326(c).

of the word "standards" in §316(b). Effluent limitations are established on a case-by-case basis for a specific facility. However, standards refer to nationally-applicable effluent limitation guidelines of new source performance standards – which establish standards on an industry-wide basis.

The legislative history for §316(b) also confirms that Congress did not intend it to apply to hydroelectric facilities. Congress added §316(b) in 1972 to address adverse environmental impacts associated with industrial facilities such as steam electric generating facilities. In September 1972, the conference committee amended §316 by adding a provision to address CWIS and submitted its report for approval by both the House and Senate.[5] During the House of Representatives consideration of the conference report, Rep. Donald Clausen made the following statement:

> Section 316 was originally included in the House-passed water pollution control bill because of the belief that the arguments which justified a basic technological approach to water quality control did not apply in the same manner to the discharges of heat…. [S]team-electric generating plants are the major source of the discharges of heat…. Section 316(b) requires the location, design, construction, and capacity of cooling water intake structures of *steam-electric generating plants* to reflect the best technology available for minimizing any adverse environmental impact.[6]

Rep. Clausen's statement indicates that Congress intended §316(b) to apply to steam electric generating plants that use significantly larger volumes of water for cooling purposes. By contrast, hydroelectric facilities divert *de minimis* amounts of cooling water. In general, cooling water accounts for less than 1% of the total water transported through the facility and in some cases less than 0.1%.[7]

The organization of the statute, its plain language, and the legislative history of this provision demonstrate that §316(b) does not apply to hydroelectric facilities. Thus, the discussion of §316(b) in the Fact Sheets for the Proposed Permits and the §316(b)-related conditions included in the Proposed Permits should be removed.

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[5] *See* H.R. Rep. No. 92-1465, at 68, 137 (Sept. 28, 1972).

[6] House Consideration of the Report of the Conference Committee (Oct. 4, 1972), *reprinted in* 1 A LEGISLATIVE HISTORY OF THE WATER POLLUTION CONTROL ACT AMENDMENTS OF 1972, at 262–64 (1973) (statement of Rep. Clausen) (emphasis added).

[7] The Associations recognize that each of the facilities subject to this permitting action withdraw greater than 2 MGD for cooling purposes. While EPA indicates that the volume of withdrawals at these facilities is higher than the regulatory threshold in EPA's 2014 Regulation, this threshold is not relevant in the hydropower context. As explained in more detail in these comments, the 2014 Regulation was not focused on hydropower facilities, and EPA did not evaluate its applicability or appropriate regulatory thresholds to be used in this context. Moreover, water withdrawals from the facilities subject to the Proposed Permits are still significantly lower than those of steam electric generating facilities and are substantially smaller than the volume of water released through the dams associated with these projects.

II. EPA §316(b) Regulations Do Not Cover Hydroelectric Facilities.

The administrative record associated with EPA's §316(b)-related regulations confirms the understanding that §316(b) does not apply to hydroelectric facilities. EPA's first rule implementing §316(b), issued in 1976, did not indicate that it applied to hydroelectric facilities.[8] That rule, codified at 40 C.F.R. § 401.14, was based on an economic impact analysis as it related to "electric powerplants – which are the largest industrial users of cooling water" – and the proposed rule referred specifically to "standards of performance for the steam electric power generating industry."[9] Consistent with the language and intent of the CWA, that rule required compliance with §316(b) by point sources subject to EPA standards established pursuant to §§301 or 306.[10]

Since 1976, EPA has issued a series of regulations implementing §316(b) for certain new facilities,[11] existing steam electric plants,[12] and manufacturing facilities.[13] During the development of these rules, EPA has never suggested that any of the rules would apply to hydroelectric facilities. Although some of these rules have been withdrawn as a result of unrelated litigation, the fact that EPA's §316(b) implementing rule does not apply to hydroelectric facilities has not changed.

Indeed, in the current rule, promulgated by EPA in 2014, EPA estimated that a total of 1,065 facilities (544 electric generators and 521 manufacturers) would be subject to the regulation.[14] None of those facilities were hydroelectric power generators. In its notice of proposed rulemaking for that rule, EPA expressly indicated that water withdrawals for generation of electricity by hydroelectric facilities were not subject to the rule.[15] Not surprisingly, as a result of that express statement, not a single member of hydroelectric industry commented on the proposed rule.[16] EPA received no comments

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[8] 41 Fed. Reg. 17,387 (Apr. 26, 1976) (although not relevant here, the rule was later vacated by the court).

[9] *Id*. at 17,389; *see also* notice of proposed rulemaking for that regulation, 38 Fed. Reg. 34,410 (Dec. 13, 1973) ("regulations were developed in the course of studies undertaken in support of effluent limitation guidelines and standards of performance for the steam electric power generating industry").

[10] *See* 40 C.F.R. § 401.14 ("The location, design, construction and capacity of cooling water intake structures of any point source for which a standard is established pursuant to section 301 or 306 of the Act shall reflect the best technology available for minimizing adverse environmental impact, in accordance with the provisions of part 402 of this chapter.").

[11] *See* Phase I rule establishing national technology-based performance requirements for new facilities that withdraw greater than 2 MGD of surface water and use at least 25 percent of the water they withdraw for cooling purposes. 66 Fed. Reg. 65,256 (Dec. 18, 2001).

[12] *See* Phase II rule establishing requirements for existing steam electric plants with flows greater than 50 MGD. 69 Fed. Reg. 41,576 (July 9, 2004).

[13] *See* Phase III rule establishing requirements for lower flow steam electric plants and all manufacturing facilities. 71 Fed. Reg. 35,006 (June 16, 2006).

[14] 79 Fed. Reg. at 48,305.

[15] *See* 76 Fed. Reg. 22,174, 22,190 (Apr. 20, 2011) ("Given the diversity of industrial processes across the U.S., there are many other industrial uses of water not intended to be addressed by today's proposed rule. … [H]ydro-electric plant withdrawals for electricity generation are not cooling water uses and are not addressed by today's proposal.")

[16] There is no reference to hydroelectric facilities in EPA's 467-page response to comments document.

regarding the potential applicability of §316(b) to hydroelectric facilities from other non-industry commenters. Similarly, none of EPA's Information Collection Requests ("ICRs") under the 2014 Regulation were directed at hydroelectric facilities, nor did EPA use any other method to collect or consider information from hydroelectric industry.

Furthermore, EPA has not based the 2014 Regulation on information that would account for the specifics of hydroelectric industry, nor did it evaluate the impacts of the rule on hydroelectric facilities. First, EPA did not include hydroelectric facilities in its Economic Analysis, a key document that underpins agency rulemakings.[17] Second, for its Benefits Analysis, EPA extrapolated data from 98 model facilities based on information it received in the 2000 ICR.[18] These included industrial facilities that utilize large quantities of cooling water and specifically, steam electric plans, and excluded hydroelectric facilities because they do not generate electricity through steam.[19] Third, EPA did not analyze hydroelectric facilities in its Technical Development Document, a 372-page document outlining EPA's analyses supporting the conclusions in the 2014 Regulation. Tellingly, EPA indicated that 559 facilities would be subject to the 2014 Regulation; they did not include any hydroelectric facilities.[20]

In advancing the Proposed Permits, therefore, EPA seeks to upend this entire, uniform precedent, rooted in the plain language, purpose, and intent of the CWA. EPA itself acknowledges that "EPA never intended that the rule's substantive provisions would apply to [hydroelectric facilities]." Lower Columbia River Fact Sheet at 52; Lower Snake River Fact Sheet at 51. Nonetheless, EPA goes on to conclude that hydroelectric facilities are subject to the provisions of §316(b) pursuant to 40 C.F.R. § 125.90(b) – **part of the very rule that EPA acknowledges was never intended to apply to hydroelectric facilities.** And EPA's statement is not supported by the regulatory language. The CWIS' not subject to the requirements in §§ 125.94 through 125.99 are those CWIS' that withdraw less than 2 MGD or use less than 25% of the water withdrawn for cooling purposes.[21] This threshold for the rule's applicability is not at all focused on hydroelectric facilities. Rather, it is a threshold set by EPA to ensure that 99.8% of the steam electric generating facilities and manufacturers covered by §316(b) are subject to the substantive requirements.[22]

Response to Comments Document for the Final 316(b) Existing Facilities Rule (May 19, 2014) (EPA-HQ-OW2008-0667-3679).

[17] Economic Analysis for the Final 316(b) Existing Facilities Rule at 2A-4 (May 2014) ("2014 Economic Analysis"). In fact, the only discussion of hydroelectric facilities in EPA's 2014 Economic Analysis is a general description of hydroelectric facilities' contribution to electricity generation. *See id*. at 2A-3.

[18] Benefits Analysis for the Final Section 316(b) Existing Facilities Rule at 3-5 (May 2014).

[19] Information Collection Request, Detailed Industry Questionnaires: Phase II Cooling Water Intake Structures & Watershed Case Study Short Questionnaire at 4 (Aug. 18, 1999).

[20] Technical Development Document for Final Section 316(b) Existing Facilities Rule, Exhibit 4-26 (May 19, 2014).

[21] 40 C.F.R. § 125.91.

[22] 79 Fed. Reg. at 43,808.

To the extent EPA takes the position that §125.90(b), as it existed prior to the 2014 rulemaking, already covered hydroelectric facilities, there is no indication in the preambles or analyses supporting prior versions of this provision that this was ever EPA's intention. As explained above, §316(b) is focused on industries for which national standards have been developed. EPA has never indicated otherwise. And the Proposed Permits and Fact Sheets do not explain or support EPA taking such a position.

Given this extensive regulatory history – all of which excluded the collection of any information relevant to hydropower facilities, the discussion of the application of §316(b) requirements to hydropower facilities, or the involvement of the hydropower stakeholders – it is arbitrary and capricious for EPA to make a determination in permits issued to individual facilities that §316(b) applies to hydropower facilities. Such a significant decision cannot be undertaken lightly. In fact, a decision with this significance, departing from the longstanding history and regulatory record relating to §316(b) would typically only be undertaken after a national rulemaking, allowing the input of all stakeholders and a uniform understanding of the scope, applicability, and criteria. That is certainly the case if EPA were to require any technology beyond already existing technology. Including §316(b) provisions in the Proposed Permits is not the appropriate means of making national policy decisions. The 2014 Regulation does not provide any support or basis for imposing §316(b) requirements on hydropower facilities.

III. The Existing Regulatory Framework for Hydroelectric Facilities, Including the FERC Licensing Process, Already Addresses Impingement and Entrainment.

The Proposed Permits are a departure from the regional general permit proposals issued by EPA Regions 1 and 10 in 2018, which would have applied to hydroelectric facilities in those Regions for which EPA is the NPDES permitting authority. As NHA commented then and reiterates here, §316(b) does not and should not apply to hydroelectric facilities. Given the extensive regulatory framework that already exists for hydroelectric facilities, which includes consideration of impingement and entrainment impacts, there is no practical purpose or need to apply §316(b) to hydroelectric facilities.

All hydroelectric projects are subject to review under the National Environmental Policy Act ("NEPA") and the Endangered Species Act ("ESA"). As part of the NEPA review, impacts to aquatic resources including aquatic species susceptible to impingement and entrainment are reviewed, and alternatives to those impacts are considered. Where a hydroelectric project may impact federally threatened and endangered fish or other aquatic species, a formal consultation with the U.S. Fish and Wildlife Service ("FWS") and National Marine Fisheries Service ("NMFS") is required. Through this process, these agencies and the project proponent work together to eliminate or minimize potential impacts to these species. At the conclusion of this process, these agencies impose conservation and mitigation measures to minimize impacts to protected species from hydroelectric facilities, including from the diversion of

cooling water. For projects that will result in incidental take, these agencies recommend imposition of reasonable and prudent measures to minimize the take of listed species.

Non-federal hydroelectric facilities undergo even greater scrutiny. They are subject to the Federal Power Act ("FPA"), which creates a rigorous FERC licensing program. Under the FPA, FERC must consider and address impingement and entrainment impacts from the facility as a whole. FPA grants FWS, NMFS, and state water quality agencies the authority to mandate conditions for inclusion in the FERC license to protect aquatic species and state water quality. Section 18 of the FPA requires FERC to include in any license "the construction, maintenance and operation by the licensee at its own expense of . . . such fishways as may be prescribed by the Secretary of the Interior or Secretary of Commerce."[23] These "mandatory" prescriptions cannot be rejected or modified by FERC; they must be included in any license issued by FERC for a hydropower project.[24]

Similarly, beyond the requirements of the FPA, FERC licenses are subject to CWA Section 401 certification from states to ensure that water quality standards are met. Here again, the state review encompasses the whole project. Any conditions included in a state 401 certification must be included in the FERC license.[25]

The ability of FWS, NMFS, and state water quality agencies to mandate inclusion of conditions is significant for two reasons. First, it provides assurance that protection of aquatic species and state water quality are preeminent in the licensing process. They are controlling factors and must be addressed before a license can be issued. Second, this process demonstrates that there is no need for §316(b) to apply to non-federal hydropower facilities. The goal of §316(b) is to ensure the protection of aquatic species from impingement and entrainment, and to protect water quality. The FPA gives authority to FWS, NMFS, and state water quality agencies to mandate conditions to protect these very same resources. Subjecting such projects to additional §316(b) review will not add any benefit, is unnecessarily duplicative, and is unlikely to result in any changes to the projects.

What is more, application of §316(b) to non-federal hydroelectric facilities on a case-by-case basis as suggested by EPA would demand significant resources. Given that FERC, FWS, NMFS, states, tribes and other stakeholders address impingement and entrainment over a multi-year FERC process, it may not be a beneficial use of EPA's time and resources to undertake such a complex (and duplicative) analysis. This is especially true given EPA's lack of data regarding hydroelectric facilities on which to base their decisions.

In addition to the role of FWS, NMFS, and state water quality agencies, the FPA charges FERC with independent responsibility to ensure that each licensed project is

[23] 16 U.S.C. § 811.
[24] *Am. Rivers v. FERC*, 201 F.3d 1186 (9th Cir. 1999).
[25] 33 U.S.C. § 1341(d).

"best adapted to a comprehensive plan for improving or developing a waterway or waterways" for a number of public benefits, including "the adequate protection, mitigation, and enhancement of fish and wildlife (including related spawning grounds and habitat) … ."[26] When developing license requirements, in fact, FERC is directed to give "equal consideration to the purposes of energy conservation, the protection, mitigation of damage to, and enhancement of, fish and wildlife (including related spawning grounds and habitat), the protection of recreational opportunities, and the preservation of other aspects of environmental quality."[27]

Once FERC issues a hydropower license, the licensee must include approval of all plans and specifications for the project, which must be designed to meet the conditions outlined above. Significantly, no changes can be made to such plans or specifications unless approved and made a part of the FERC license.[28] Accordingly, regulating the fish impacts of non-federal hydropower projects under both CWA §316(b) and the FPA leads to potential conflicts, lengthy project delays, and a burdensome administrative process. This is only heightened by the fact that the licenses issued for non-federal hydropower projects are issued for periods of 30 – 50 years.[29] And the FPA requires these licenses to be for fixed conditions that can only be modified upon mutual consent of FERC and the licensee.[30] By contrast, NPDES permits are valid for a 5 year period. Revisiting the fish protections every 5 years under the guise of a CWA §316(b) requirement undoubtedly would undermine the foundational statutory policies reflected in the FPA: long license term with fixed condition, to provide certainty of investment in our nation's hydropower resources. It would also significantly disincentivize investment in hydroelectric facilities.

As a result of this comprehensive regulatory framework, impacts from hydroelectric facilities are addressed – including and especially impacts to aquatic species, which is the driving purpose of the §316(b)-related provisions of the Proposed Permits. The preamble to EPA's 2014 Regulation acknowledges that such legal requirements may be applied to address "adverse environmental impact caused by cooling water intake structures" at facilities not subject to NPDES permitting requirements.[31] They are similarly the appropriate mechanisms for addressing such impacts at hydroelectric facilities.

IV. Clarification Needed on BPJ Determination of BTA Included in the Proposed Permits.

The Fact Sheets accompanying the Proposed Permits appropriately recognize that hydroelectric facilities' existing controls are technologies that satisfy the requirements of best technology available ("BTA") to minimize entrainment and

[26] 16 U.S.C. § 803(a)(1).
[27] 16 U.S.C. § 797(e).
[28] 16 U.S.C. § 803(b).
[29] 16 U.S.C. §§ 799, 808(e).
[30] 16 U.S.C. § 799.
[31] 79 Fed. Reg. at 48,307.

impingement mortality. Lower Columbia River Fact Sheet at 53; Lower Snake River Fact Sheet at 52. This further supports the conclusion that §316(b) does not apply to hydroelectric facilities. The Fact Sheets go on to outline four factors used by EPA as part of its BPJ analysis to determine whether the federal facilities proposed for permitting meet the BTA requirement.[32] The Associations' comments are focused on this four-factor analysis.

A. BTA Should Be Satisfied if Any of the Four Factors are Met.

Clarification about how the four factors will be considered by EPA is needed. The Fact Sheets state that EPA may consider any of the four factors, and that "any combination of *one or more* of the factors" may be used to address entrainment and impingement. Lower Columbia River Fact Sheet at 53 (emphasis added); Lower Snake River Fact Sheet at 52 (emphasis added). EPA should revise these statements to make clear that if any one of the four factors is met, the BTA requirement is satisfied. Facilities should have the option of demonstrating compliance with any one of the options. As most, if not all, hydropower facilities will satisfy Factor 2, that is likely the option most facilities will choose to pursue. They should be able to do so without having to provide any information or analysis for the other three factors.

B. EPA Should Provide Additional Guidance Regarding the Four Factors.

Little information is available as to how each of the four factors are interpreted and applied by EPA. While this is appropriate given that Factor 4 is used to evaluate the federal facilities, it would be helpful for EPA to provide guidance in the Fact Sheets regarding the factors.

Factor 1 – Efficiency of Power Generation

It is unclear how Factor 1 is evaluated. The description in the Fact Sheets is simply a statement regarding the fact that hydroelectric facilities use cooling water more efficiently than a once through steam electric facility. Lower Columbia River Fact Sheet at 53; Lower Snake River Fact Sheet at 52. It is also unclear how this factor relates to Factor 2, discussed below, which appears to already account for the fact that hydropower facilities withdraw significantly smaller amounts of water for cooling purposes. Additional guidance in the Fact Sheets is needed about how this condition may be met.

The statement in the Fact Sheets that hydroelectric facilities "generate less waste heat" is accurate and illustrates the points made earlier in these comments that §316 of the CWA is designed to address thermal discharges (and the water withdrawn to generate those discharges). Such discharges are associated with steam electric generating facilities rather than hydroelectric facilities.

[32] As noted earlier in these comments, it is inappropriate to establish regulatory criteria for an entire category of facilities through the issuance of individual permits. Such criteria are typically developed through a national rulemaking process.

By virtue of the differences between steam electric generating facilities and hydroelectric facilities, comparison between the two types of projects is not an apples-to-apples comparison. Hydroelectric facilities inherently use water more efficiently than steam electric generating facilities. Thus, it would appear that every hydroelectric facility would satisfy this criteria, supporting the fact that §316(b) should not be applied to hydroelectric facilities.

Factor 2 – Percentage of Water Withdrawn for Cooling Purposes

The Associations agree with EPA's statement that "The cooling water withdrawn at each facility is a small fraction of the water passed through the dam for generating purposes, often less than 1%; EPA expects such withdrawals will be almost always below 5%." Lower Columbia River Fact Sheet at 53; Lower Snake River Fact Sheet at 53. Thus, it appears that EPA is stating that where the amount of water used for cooling purposes is a small fraction of the total volume of water passing through the dam, this could satisfy BTA. Another consideration may be the low volume of cooling water used as compared to the overall flow of the river. Where the water withdrawn for cooling purposes is less than 5% of the river flow, this could also satisfy BTA. In either scenario, the "technology" is the minor withdrawal of water for cooling purposes. Confirmation from EPA that this is how Factor 2 applies would be helpful.

Factor 3 – Location of Intake Structure

The Associations agree that location of the intake structure is a relevant consideration when assessing BTA. Hydroelectric facilities vary significantly in terms of design and configuration, especially when it comes to the pipes and structures that divert water for purposes of cooling. Generally, water diverted for cooling is primarily sourced from three locations within the hydroelectric facility: (1) the penstock – a closed conduit or pipe that conveys water from the reservoir to the turbine, (2) the turbine scroll case – a spiral-shaped steel structure distributing water flow through the wicket gates located just prior to the turbine, or (3) a water inlet port located on the face of the dam. There likely are exceptions to these locations, because each facility has a unique, location-specific design to take maximum advantage of the hydraulics of that location.

This factor should allow a facility to explain whether it is possible to monitor or otherwise assess entrainment or impingement mortality given the location of the CWIS. Similarly, a facility should be able to explain whether the configuration of the facility as a whole – including the location of the CWIS – is sufficient to prevent impingement and entrainment from occurring.

Factor 4 – Technologies at the Facility

The fourth factor considers technologies at the facility. This factor should make clear that the technology being assessed – and regulated by EPA – is the CWIS.

Reevaluation of other technologies at the facility such as fish passage structures or turbine velocities is not within the purview of EPA.

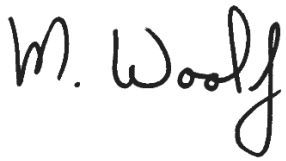
Another option for Factor 4 would be a determination that the configuration of the hydropower facility, including any measures employed as a result of consultation with the FWS or NMFS, could be deemed to satisfy the BTA requirement. But this determination should be made with the recognition that EPA has no jurisdiction over these components – it is simply a determination that the configuration is such that no additional requirements are needed at the CWIS.

C. EPA Should Eliminate Any Separate Reporting Requirement for CWIS.

The Proposed Permits include a separate annual reporting requirement focused on the performance of CWIS at the covered facilities. Hydroelectric facilities are already subject to extensive monitoring and reporting requirements. Moreover, EPA's Fact Sheets already reflect the minimal impacts of CWIS at hydroelectric facilities. Including this additional reporting requirement is unnecessary and will impose costs without any corresponding benefit and should be eliminated.

NHA and NWHA appreciate the opportunity to comment on the Proposed Permits. Thank you for your consideration of these comments. If you have any questions or would like any additional information, please contact Dennis Cakert at Dennis@hydro.org or 202-697-2404.

Sincerely,



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May 2, 2020

US Environmental Protection Agency, Region 10
Jennifer Wu
Wu.Jennifer@epa.gov

RE: EPA NPDES Permit Numbers: WA0026794, WA0026786, WA0026808, WA0026816, WA0026824, WA0026832, WA0026701, WA0026778

Dear Ms. Wu:

Thank you for the opportunity to comment on behalf of Northwest RiverPartners ("RiverPartners") regarding National Pollutant Discharge Elimination System ("NPDES") permits for the lower Snake River and lower Columbia River dams.

RiverPartners represents not-for-profit, community-owned utilities across Washington, Oregon, Idaho, Montana, and Wyoming. We also proudly represent supporters of clean energy, low-carbon transportation, and agricultural jobs.

Our mission is to lead the charge for the Pacific Northwest to realize its clean energy potential using hydroelectricity as the cornerstone. Our goals are to help fight climate change and restore healthy fish populations, while being inclusive of vulnerable communities and maintaining an affordable, dependable electric grid.

We would like to begin by expressing our support for the comments provided by one of RiverPartners' member organizations, PNGC Power.

PNGC Power, in its comments submitted to EPA on 5/1/2020, wrote,

> *At a time when our country is fighting to contain a coronavirus that is seriously threatening human health and the economy, policymakers must be particularly cautious about the imposition of potentially costly new regulatory requirements. To the extent regulations are warranted, conditions imposed must be carefully calibrated to address risk and result in demonstrable benefits. As you know, our region's carbon-free federal hydropower supply sourced from the CRS [Columbia River System], is the engine of the Pacific Northwest's economic prosperity and environmental sustainability. We ask EPA to partner with us to enhance the security it provides.*

The remaining focus of our letter is to suggest the appropriate parameters for the United States Environmental Protection Agency ("EPA") to consider in issuing permits to discharge pollutants pursuant to the provisions of the Clean Water Act ("CWA"), 33 USC §1251 et seq.

The specific permits we will be commenting on are:

- Lower Granite Lock and Dam, NPDES Permit No. WA0026794
- Little Goose Lock and Dam, NPDES Permit No. WA0026786
- Lower Monumental Lock and Dam, NPDES Permit No. WA0026808
- Ice Harbor Lock and Dam, NPDES Permit No. WA0026816
- McNary Lock and Dam, NPDES Permit No. WA0026824
- John Day Project, NPDES Permit No. WA0026832
- The Dalles Lock and Dam, NPDES Permit No. WA0026701
- Bonneville Project, NPDES Permit No. WA0026778

HISTORY

EPA is proposing to issue the first National Pollutant Discharge Elimination System ("NPDES") permits for the aforementioned facilities on the lower Snake River and the lower Columbia River. This step is being taken pursuant to a July 2013 lawsuit, filed in federal district court by Columbia Riverkeeper against the US Army Corps of Engineers ("USACE") for discharges of oil and grease without NPDES permits.[1]

On August 4, 2014, USACE and Columbia Riverkeeper reached a settlement agreement where, among other things, USACE agreed to submit NPDES permit applications for outfalls with potential pollutant discharges for the facilities listed above. USACE submitted NPDES permit applications to EPA Region 10 office on April 21, 2015 for all four hydroelectric generating projects. USACE also sent supplementary materials to EPA on August 29, 2018. EPA has determined that the USACE applications are complete. [2]

EPA made the announcement of an open comment period on March 18, 2020.[3]

RECOMMENDATIONS TO EPA

RiverPartners asks that EPA consider the following points in its NPDES permitting process for the aforementioned hydroelectric projects:

- **Clarify that CWA Section 316(b) Does Not Apply to Hydroelectric Facilities**

  The EPA.Gov website notes, "Cooling water intake structures cause adverse environmental impact by pulling large numbers of fish and shellfish or their eggs into a power plant's or factory's ***cooling system***."[4] (Emphasis added)

  The Section 316(b) rule of the CWA was established in 2014 to address the above issue. Section 316(b) requires that the location, design, construction, and capacity of cooling water intake structures reflect

[1] EPA 2020 Fact Sheet for USACE Lower Snake River Hydroelectric Generating Permits p 13
[2] EPA 2020 Fact Sheet for USACE Lower Snake River Hydroelectric Generating Permits p 13
[3] EPA 2020 Fact Sheet for USACE Lower Snake River Hydroelectric Generating Permits p 1
[4] EPA "Cooling Water Intakes" web page

the best technology available ("BTA") for minimizing adverse environmental impacts such as impingement and entrainment.

According to the NPDES Final Regulations document, the 316(b) rule specifically applies to, "…generating facilities and existing manufacturing and industrial facilities that withdraw more than 2 million gallons per day (mgd) of water from waters of the United States ***and use at least 25 percent of the water they withdraw exclusively for cooling purposes***."[5] (Emphasis added)

For the hydroelectric projects referred to in this document, the amount of water withdrawn from the river for the purpose of cooling plant equipment is less than 1% of the total water that passes through the dams. For almost all hydroelectric projects, the total withdrawal amount for cooling purposes will be below 5%.

As a result, it is clear that the 316(b) rule does not apply to hydroelectric facilities.

In further support of this argument, we note that EPA's NPDES Fact Sheets states,

> *The Agency has determined that, in light of the text, structure, history and purpose of the regulation (316(b)), in the case of hydroelectric facilities, the (2014) rule is ambiguous as to application of the substantive requirements and that the EPA never intended that the rule's substantive provisions would apply to them.*[6]

- **Remain In-Scope of NPDES Intent**

  NPDES certification should be limited to the scope of EPA's request envisioned under the NPDES intent—that is to say limited to potential pollutant discharges, such as the release of substances like oil used to lubricate equipment or effluent water used to cool equipment within the dam.

  Specifically, EPA defines effluent water as:

  > *…water [that] is diverted internally and re-routed to cool equipment before being discharged through discrete outfalls ("cooling water"). Drainage sumps in hydroelectric generating facilities also collect water inside the facilities that include Snake River water leaking into the dam, turbine oil, and other water from equipment and floor drains, before being discharged through discrete outfalls ("equipment and floor drain-related water"). Unwatering sumps collect water when equipment submersed in water are being maintained or repaired and need to be dewatered ("equipment and facility maintenance-related water"). This water is also discharged through a discrete outfall.*[7]

  As EPA is aware, the overwhelming majority of water that flows through the lower Snake and lower Columbia river dams does not fit EPA's definition of an effluent.

[5] Federal Register Document #2014-12164 *National Pollutant Discharge Elimination System-Final Regulations To Establish Requirements for Cooling Water Intake Structures at Existing Facilities and Amend Requirements at Phase I Facilities*

[6] EPA 2020 Fact Sheet for USACE Lower Snake River Hydroelectric Generating Permits p 52

[7] EPA 2020 Fact Sheet for USACE Lower Snake River Hydroelectric Generating Permits p 14

We note, per two different federal court decisions,[8,9] that water that passes through turbines or over spillways (i.e., "non-effluent water") is excluded from NPDES permitting requirements.

RiverPartners is especially concerned that including non-effluent water under the purview of NPDES regulations could result in any of the following unintended consequences:

a. conflict with requirements under NOAA's governing Columbia River System Biological Opinion
b. prohibit USACE from meeting the congressionally mandated multiple objectives of one or more of the lower Snake or lower Columbia river dams
c. unintentionally limit the ability of USACE to implement adaptive management measures in response to in-river conditions for fish

- **Ensure that Requirements Are Reasonable and Practicable**

We also ask that EPA adhere to reasonable and practicable requirements for implementation. Specifically, we request that EPA not require additional costly monitoring conditions.

We note the acknowledgement from EPA's 2020 NPDES Permit Fact Sheet for the lower Snake River dams, which states:

> *…the hydroelectric generating facilities' permitted discharges have minimal impacts on temperatures in the Snake River, primarily because of dilution and effluent temperatures. In addition, note that influent temperatures are highly variable by depth. This evaluation is consistent with preliminary Columbia River temperature TMDL models that show minimal impact on temperature from point sources.*[10]

Given the minimal effects of effluents associated with the lower Snake and Columbia river dams, it does not make sense to apply costly monitoring measures to these projects, which could make their electricity less affordable to the residents of the Pacific Northwest.

It is important to recognize that, unlike most federal agencies, the Bonneville Power Administration ("BPA")—which markets the power produced by the Federal Columbia River Power System—does not receive federal appropriations. BPA is self-financed and receives its revenues from power and transmission sales.

These sales are primarily made to not-for-profit utilities, such as electric cooperatives, public utility districts, and municipalities that serve some of the most vulnerable communities across the region. Therefore, costs applied to these hydroelectric facilities as a result of new permitting processes (and current statutory requirements) will have a direct impact on the region's electricity customers.

In light of the economic devastation associated with COVID-19 precautions, this is truly not the time to add unnecessary financial burdens to homes, businesses, and communities. As a result, if EPA determines monitoring equipment is necessary, RiverPartners would recommend using representative locations.

[8] *National Wildlife Federation v. Consumers Power Company*, 862 F.2d 580 (6th Cir. 1988).
[9] *National Wildlife Federation v. Gorsuch*, 693 F.2d 156 (D.C. Cir. 1982).
[10] EPA 2020 Fact Sheet for USACE Lower Snake River Hydroelectric Generating Permits p 29

There is a high degree of uniformity among the four lower Columbia River dams. There is also a high degree of uniformity among the four lower Snake River dams. By selecting one project to monitor on the lower Columbia River and one project to monitor on the lower Snake River, monitoring costs would be greatly reduced while still obtaining a representative sample.

- **Avoid Prescriptive Methodologies**

  We encourage EPA to avoid conditions for NPDES permit approvals that would go beyond direct measurements of NPDES required outcomes. Conditional approvals may be unduly burdensome or may fail to envision technological advancements.

  For example, a hypothetical requirement for the addition of turbine bypass screens at dams could be inappropriate given a recent installation of a high fish passage turbine at Ice Harbor Dam. An article from International Water Power & Dam Construction notes:

  > *Preliminary testing on a new turbine installed by Voith at the Ice Harbor Dam on the Snake River in Washington state, US, shows the new design has achieved a survival rate of 98.25% for Chinook salmon passing through the turbine - a significant improvement over similarly sized conventional Kaplan turbine installations which typically see survival rates in the low 90 percent range, says Voith. One of the primary goals of the new Unit 2 turbine design was to improve the fish passage survival rate, and this was accomplished while simultaneously increasing the turbine's hydraulic performance and extending the life cycle of the unit. Voith says the turbine achieved a 4% boost in hydraulic efficiency.*[11]

  As a result of these types of technological advancements, it is important that EPA avoid being overly prescriptive in the way the NPDES requirements are achieved.

- **Recognize Predominant Science on Northwest River Temperatures**

  As noted above, it would be inappropriate to attempt to regulate non-effluent water under the EPA's NPDES certification process. We further suggest it is unnecessary to do so, because the dams on the lower Snake and lower Columbia rivers have not caused harmful in-river temperatures.

  The lower Columbia and lower Snake river dams are all considered run-of-river dams, with little storage capacity, so their ability to aggravate water temperatures is quite minimal.

  In terms of scientific research, a 2003 EPA study indicated that dams *may* exacerbate temperature issues on in the Columbia River Basin, but a 2002 peer-reviewed study performed by Pacific Northwest National Laboratory showed that dams within the Columbia River and Snake River basins tend to moderate extreme water temperatures. The PNNL study states,

  > *…the reservoirs decrease the water temperature variability. The reservoirs also create a thermal inertia effect that tends to keep water cooler later into the*

[11] "Test shows Ice Harbor turbine achieves high fish passage survival rates". International Water Power & Dam Construction. 3/3/2020.

spring and warmer later into the fall compared to the un-impounded river condition. [12]

Also, in 2002, a team of researchers conducted a water temperature study on behalf of USACE. The team compared pre-lower Snake River dam measurements of water temperature from 1955-1958 to measurements taken after the LSRD were constructed. The research found no evidence that river temperatures had increased as a result of the dams, and instead appeared to have remained unchanged or slightly lower. The team identified air temperature and flow levels as the biggest influences on temperatures in the river.[13]

Air temperatures in the Columbia River Basin have trended upward significantly since 1955. Data available through the University of Washington's climate change tools show that the average air temperature recorded near Kennewick, Washington, has increased at a rate of 0.37 degrees Fahrenheit per decade. (Appendix 1 of this document includes a graph air temperatures provided through the University of Washington's Pacific Northwest Temperature, Precipitation, and Snow Water Equivalent Trend Analysis Tool.)

These conditions would suggest higher water temperatures in the lower Snake River over time, but as noted above, lower Snake river temperatures have remained unchanged or slightly lower. While there have been occurrences of spikes in temperature in the lower Snake and lower Columbia rivers due to soaring air temperatures during heat waves, these events are outliers, not the norm.

When considering the effect of dams of river temperatures, it is important to recognize that damaging water temperatures are not unique to the impounded rivers. For example, in 1994, due to record high water temperatures, approximately 466,000 adult fish perished in the undammed Fraser River before reaching their spawning grounds.[14]

More recently, record breaking temperatures in Alaska led to die-offs in several undammed rivers. One event in particular, originally reported by NPR, highlighted the problem. An official estimate was not released, but biologists believe as many as 200,000 to 300,000 fish were in the river during the extreme heat event.[15]

CONCLUSION

RiverPartners advocates for the balanced use of rivers for the benefit of communities and the environment. We are supportive of measures that have proven scientific benefit for salmon and that consider the effect that the decisions have on the many users of the river system.

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[12] Summary: Regional Scale Simulation of Water Temperature in the Columbia River Basin
Richmond, et al: Regional Scale Simulation of Water Temperature and Dissolved Gas Variations in the Columbia River Basin

[13] Water Temperatures and Passage of Adult Salmon and Steelhead in the Lower Snake River

[14] Foreman, M & B. James, C & C. Quick, M & Hollemans, Peter & Wiebe, Edward. (1997). Flow and Temperature Models for the Fraser and Thompson Rivers. Atmosphere-ocean
US Army Corps of Engineers - Lower Snake River Dams

[15] NPR - Why Are Salmon Being Found Dead In Rivers Across Western Alaska?
NOAA - Alaska had its hottest month on record in July,
Juneau Empire - Warm waters across Alaska cause salmon die-offs

With this mission in mind, we ask that EPA use this opportunity to create a NPDES-certification process that:

- recognizes that hydroelectric facilities are not subject to the application of the CWA 316(b) rule.
- remains within the scope and legal precedent of the NPDES requirements.
- provides the necessary flexibility for USACE to achieve the congressionally mandated multiple objectives of the Columbia River System
- does not infringe on the purview of the governing Biological Opinion for the Columbia River System.
- is not unnecessarily prescriptive in determining how the NPDES requirements are met.
- is not overly cumbersome or costly in its execution and monitoring requirements.
- is understanding of the relatively small magnitude of the risk associated with lower Columbia River and lower Snake River effluents related to NPDES standards.

Thank you again for the opportunity to comment. RiverPartners looks forward to working with EPA throughout this and other key regulatory processes.

Best regards,

Kurt Miller
Executive Director
Northwest RiverPartners

Appendix 1: University of Washington PNW Temperature, Precipitation, and SWE Trend Analysis Tool; Kennewick, WA, 1955-2018

Temperature	Precipitation	Snow Water Equivalent

Year Range
1955 to 2019

Variable Selection
Average Temperature

Time Frame
Annual

Trend Range
Per Decade

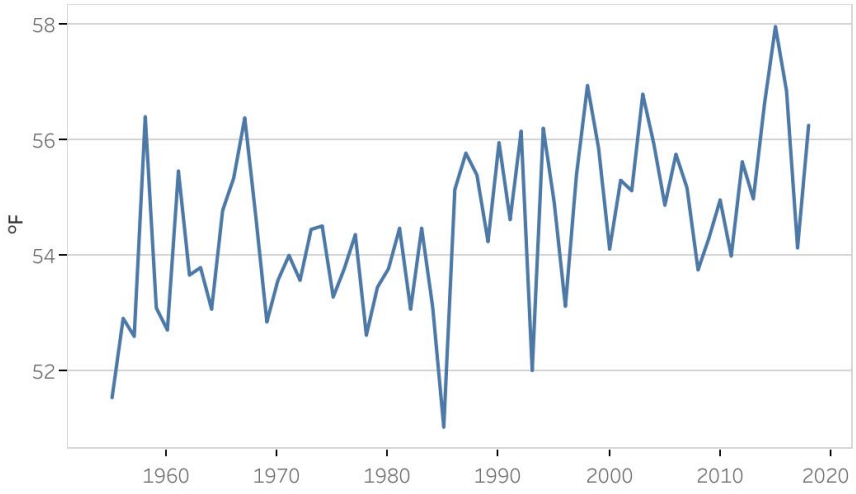
Trend	-	0	+
Significant (S)	●		●
Not Significant (NS)	●	○	●
Insufficient Data (I)	●	●	●

Add to Graph
- (●) None
- ( ) Average
- ( ) Statewide Average
- ( ) Trend Line

Trend Data (°F Per Decade)

Kennewick	WA	S	+	0.37

Annual Average Temperature 1955-2018



Station Data Source: NOAA's U.S. Historical Climatology Network version 2.5.5.20190405

Statewide Data Source: NOAA's US Climate Division Dataset (nClimDiv)

PNGC Power
Smart. Local. Connected.

May 1, 2020

Ms. Jennifer Wu
Environmental Protection Agency
Region 10
1200 Sixth Avenue, Suite 155
Seattle, WA 98101

RE: EPA's Proposed Discharge Permits for Federal Hydroelectric Projects in the Lower Snake and Lower Columbia Rivers

Thank you for the opportunity to comment on behalf of PNGC Power ("PNGC Power" or "PNGC") regarding EPA's proposal to issue National Pollutant Discharge Elimination System ("NPDES") permits for four hydroelectric generating facilities on the lower Snake River and four hydroelectric generating facilities on the lower Columbia River operated by the U.S. Army Corps of Engineers ("the Corps" or "Corps of Engineers"). These proposed discharge permits are both regionally significant and nationally precedent-setting. Notably, they are the first NPDES permits in the United States to be issued for federal hydroelectric generating facilities. We appreciate the opportunity to provide our thoughts regarding EPA's proposal.

Facilities and Permit Numbers: The Bonneville Project (WA0026778); The Dalles Lock and Dam (WA0026701); John Day Project (WA0026832); McNary Lock and Dam (WA0026824); Ice Harbor Lock and Dam (WA0026816); Lower Monumental Lock and Dam (WA0026808); Little Goose Lock and Dam (WA0026786); and Lower Granite Lock and Dam (WA0026794)

Introduction

PNGC Power is a Portland, Oregon-based electric generation and transmission ("G&T") cooperative owned by 15 Northwest electric distribution cooperative utilities. Currently, over eighty percent of PNGC's power supply comes from the Bonneville Power Administration ("BPA"), a nonprofit federal power marketing administration based in the Pacific Northwest. BPA markets wholesale electrical power from 31 federal hydroelectric projects in the Northwest, one nonfederal nuclear plant and several small nonfederal power plants. The agency provides about one-third of the electric power used in the Northwest and its resources, primarily hydroelectric, make BPA nearly carbon-free.

As one of BPA's largest power customers, PNGC creates value for its member systems by providing wholesale power supply, transmission, and other management services. PNGC Power is an aggregator of geographically diverse loads in a seven state region (Oregon, Washington, Idaho, Montana, Utah, Nevada, and Wyoming). By coming together as PNGC Power, our member cooperatives have more options than any one cooperative could have alone.

Pacific Northwest Generating Cooperative

711 NE Halsey • Portland, OR 97232-1268

(503) 288-1234 • Fax (503) 288-2334 • www.pngcpower.com

In the context of a rapidly changing energy environment, PNGC supports policy solutions that balance the dual priorities of environmental stewardship and a universal desire for economic growth and prosperity. Central to this effort, is protecting our access to federal hydropower from the Columbia River System ("CRS") that provides a carbon-free, reliable and economical power supply to our member cooperatives.

While the Corps of Engineers is congressionally authorized to operate the eight dams requiring the NPDES permits under consideration, BPA is the federal agency directed by Congress to market and distribute the power generated at these facilities. Notably, BPA is self-financed and therefore, covers all of its costs with revenues from Northwest ratepayers such as PNGC and other purchasers of its power and transmission products and services. BPA receives no annual appropriations from Congress. Therefore, costs applied to these hydroelectric facilities as a result of new permitting processes (and current statutory requirements) increase BPA's power rates, which in turn impact utility ratepayers throughout the region. This includes the nearly 200,000 member homes, farms and businesses PNGC serves, many in rural, disadvantaged communities.

At a time when our country is fighting to contain a coronavirus that is seriously threatening human health and the economy, policymakers must be particularly cautious about the imposition of potentially costly new regulatory requirements. To the extent regulations are warranted, conditions imposed must be carefully calibrated to address risk and result in demonstrable benefits. As you know, our region's carbon-free federal hydropower supply sourced from the CRS, is the engine of the Pacific Northwest's economic prosperity and environmental sustainability. We ask EPA to partner with us to enhance the security it provides.

Recommendations to EPA

As one of BPA's largest power customers, PNGC has great interest in this regionally significant and national precedent-setting NPDES permitting process for the eight CRS federal hydroelectric generating facilities under consideration. PNGC respectfully submits the following comments for EPA's consideration (note, that all quoted material below is sourced directly from EPA's two Fact Sheets):

- **Ensure that permit conditions protect water quality and human health *without* being duplicative, burdensome and/or unnecessarily broad in scope.** Pursuant to the provisions of the Clean Water Act ("CWA"), EPA's draft permits "place conditions on the discharge of pollutants from hydroelectric facilities to waters of the United States ("U.S."). To ensure the protection of water quality and human health, these permits place limits on the types and amounts of pollutants that can be discharged from the facilities" (Lower Columbia River Fact Sheet, Page 1). Specifically, they propose effluent limits on substances such as oil, grease and pH, and temperature monitoring for cooling water discharges.

  The draft permits also authorize discharges from cooling water, equipment and floor drain-related water, equipment and facility maintenance-related water, lubricants, backwash strainers, and cooling water intake structures ("CWIS"). Appropriately, per "*National Wildlife Federation v. Consumers Power Company, 862 F.2d 580 (6th Cir. 1988); National Wildlife Federation v. Gorsuch, 693 F.2d 156 (D.C. Cir. 1982),"* the "permits do not address waters that flow over the spillway or pass through the turbines" (LCR Fact Sheet, Page 18). Going forward, we ask that EPA maintain this

facility-focused approach to permitting conditions as they apply to the eight federal hydroelectric projects under consideration.

As EPA knows, CRS operations are managed by the Corps of Engineers, BPA and the Bureau of Reclamation ("the federal Action Agencies" or "Action Agencies") in consultation with other federal agencies, and in close partnership with states and tribes. The Columbia River System is operated by the Action Agencies to meet its many congressionally authorized purposes, including those to benefit species listed as threatened or endangered under the Endangered Species Act ("ESA").

Over the last three-plus years, PNGC has actively participated in a National Environmental Policy Act ("NEPA") analysis of CRS operations. This complex Environmental Impact Statement ("EIS") process seeks to balance multiple regional perspectives and make continued progress toward the recovery and mitigation for fish and wildlife, reliable and affordable clean electricity, and economic vitality for the many communities that depend on the CRS.

We are cautiously supportive of the Action Agencies' proposed Preferred Alternative in its Draft EIS, which is based on a flexible spill operation for the hydropower system with objectives to protect ESA-listed salmon species while minimizing adverse economic and social impacts to the region. On a dual track with the EIS, is NOAA's development of an updated biological opinion ("BiOp") required under ESA to ensure that federal actions are not likely to jeopardize the continued existence of a listed species, nor result in the destruction or adverse modification of designated critical habitat.

While acknowledging that the EIS, and by extension the NOAA BiOp, is more broadly focused on a comprehensive approach to management of CRS operations, it is conceivable that new NPDES permitting requirements may come into conflict with ESA-related measures currently, or soon-to-be in place. Along these lines, while conforming to the statutory requirements of the CWA, we would like EPA to consider the enormous regional effort behind the CRS EIS process. As such, we ask the agency to ensure that new permitting conditions imposed on the Corps for these eight facilities are not duplicative or unintentionally counterproductive to ESA-related measures already in place, or being contemplated by the current EIS/BiOp development process (particularly features related to operational flexibility and adaptive management of the system for threatened and endangered species).

In addition to right-sizing the permitting scope and asking EPA to consider the strong level of effort around the ongoing regional CRS NEPA work, we ask that the agency identify additional opportunities and mechanisms for Corp's reporting efficiencies to demonstrate NPDES permit compliance. Along these lines, PNGC appreciates instances where EPA's draft proposal allows the Corps to utilize plans, analysis, and evaluation reports that comply with other environmental regulations to meet the requirements of these NPDES permits. However, in instances where the regulation of specific discharge substances are impractical and/or not cost effective, we would like EPA to consider eliminating the permit condition. Additionally, where regulation of particular discharge substances are regulated under other environmental laws or regulations, we request that EPA remove the permit requirement.

- **Ensure that permit monitoring protocols (and reporting) are calibrated to the level of environmental risk, and *do not* unintentionally undermine other statutory requirements governing the CRS.** PNGC is generally supportive of strong monitoring and reporting to ensure that regulatory requirements imposed by federal agencies are practical, cost-effective and result in their desired outcome. Because these are the first NPDES permits issued for federal hydroelectric generating facilities in the nation, it is unclear whether the monitoring and reporting protocols proposed by EPA are reasonable. However, at first glance, we are concerned about the likely need for additional staff to manage compliance, potential for high costs associated with meeting the requirements outlined, and instances in the draft proposal that appear to call for greater administrative effort (by both the permittee and the permitting agency) than may be warranted given the minimal impact of these facilities to water quality.

  These concerns are derived from the detailed explanation of requirements presented in the Fact Sheets. For example, with respect to water temperature, although cooling water discharges from the hydroelectric generating facilities *may affect* temperature, "the effects may be small, since these discharges combine with water passed over spillways"(LCR Fact Sheet, Pages 31-32). Further, EPA states that, "Even using the minimum Columbia River Flows, the amount of dilution is significant because the Columbia River flows are much greater than facility discharges. Table 11 shows that given the limited data set, the hydroelectric generating facilities' permitted discharges have minimal impacts on temperatures in the Columbia River, primarily because of dilution and effluent temperatures" (LCR Fact Sheet, Page 32).

  Unfortunately, despite the minimal impacts described, EPA cites the protection of threatened and endangered salmon as a reason to impose what appear to be a mismatched set of temperature monitoring requirements considering the low risks of hydroelectric discharges to water quality. EPA's draft proposal says, "temperature is important in the Columbia River with respect to threatened and endangered salmon . . . Therefore, the permits require continuous temperature influent and effluent monitoring for cooling water discharges . . . The permit also requires the permittee to submit a Temperature Data Report with the next permit application that includes the monthly instantaneous maximum, the maximum daily average, and 7-day average daily maximum influent and effluent temperatures measured at each outfall" (LCR Fact Sheet, Page 33). Given the minimal effects of these discharges, it seems excessive for the agency to impose monitoring and reporting requirements that would likely demand additional staff and financial resources.

  Finally, when the protection of threatened and endangered salmon is used to justify the imposition of new requirements, we are sensitive to the potential for jurisdictional and statutory conflicts that may create unintended consequences. We are particularly thoughtful about this given PNGC's strong engagement in the Action Agencies' NEPA work discussed above, as well as the enormous shared BPA ratepayer commitment to protecting ESA-listed salmon (nearly $17 billion from 1978-2018). To ensure that these BPA customer funded fish mitigation efforts continue to be impactful, we ask that EPA coordinate closely with the Corps (as the permit holder) and NOAA on cross-jurisdictional issues that either tangentially or directly affect listed anadromous fish. Specifically, to ensure that permitting actions required by EPA do not unwittingly conflict with, or undermine, the implementation of the CRS biological opinion including its operational flexibility and critical adaptive management measures.

- **Revisit the applicability of Clean Water Act Section 316(b) requirements for hydroelectric generating facilities. Remove Section 316(b) conditions from these NPDES permits.** We do not believe that hydroelectric facilities were envisioned to be regulated under Section 316(b), as this provision was tailored to address thermoelectric generating plants and manufacturing facilities that withdraw significant volumes of water to absorb heat. We are therefore concerned that Region 10 is proposing to establish case-by-case, best professional judgement ("BPJ") 316(b) conditions for cooling water intake structures at these hydroelectric facilities without a thorough, national public process. The imposition of Section 316(b) on hydroelectric facilities is a departure from EPA's 2014 rulemaking, where EPA clearly did not intend for the rule to apply to these facilities.

  This is addressed directly in the body of the draft permit Fact Sheets, where EPA reviews the objectives of the 2014 rulemaking, acknowledges its ambiguity in application to hydroelectric facilities, and points to 40 C.F.R. §125.90(b) to apply best professional judgement ("BPJ") conditions to all CWIS's at hydroelectric facilities. Specifically, establishing case-by-case, BPJ 316(b) conditions to determine if best technology available ("BTA") requirements are satisfied.

  The Fact Sheets says, "The Agency has determined that, in light of the text, structure, history and purpose of the regulation (316(b)), in the case of hydroelectric facilities, the (2014) rule is ambiguous as to application of the substantive requirements and that the EPA never intended that the rule's substantive provisions would apply to them" (LCR Fact Sheet, Page 52). The narrative then pivots to an interpretation by EPA, that pursuant to 40 C.F.R. §125.90(b), "all cooling water intake structures at hydroelectric facilities are subject to BPJ Section 316(b) cooling water intake structure conditions." The agency goes on to explain that, "This provision provides that a cooling water intake structure not subject to substantive provisions under the existing facility rule or another 316(b) requirements rule must meet requirements established on a case-by-case, BPJ basis" (LCR Fact Sheet, Page 52).

  To determine if BTA requirements are satisfied, EPA lays out a four-factor framework for the consideration of various technologies currently installed at hydroelectric generating facilities to establish case-by-case BPJ conditions. The Fact Sheet discusses how EPA may use these four factors, or other facility-specific factors, in its BPJ analysis to address fish entrainment and impingement. The application of this approach to the eight hydroelectric facilities at issue is confusing, open to interpretation, and therefore, requires significant further discussion and stakeholder input. As such, we request that EPA provide additional clarity around this framework. In the absence of further clarification, and with confidence that these eight facilities meet all of the factors outlined in the draft proposal, we would like EPA to consider removing 316(b) conditions from these NPDES permits all together.

  Additionally, we request that CWIS BTA requirements to prevent impingement and entrainment be aligned with ESA compliance as governed by the NOAA CRS biological opinion. Along these lines, for example, within the Bonneville Project Permit (WA002677), EPA has correctly determined that existing Corps' Fish Operating Plans and Fish Passage Plan (as required by the BiOp) are sufficient to satisfy the BTA requirement to minimize entrainment and to minimize impingement mortality. Therefore, we ask EPA to eliminate all redundant conditional details outlined in the permit.

Also, in the interest of improving fish survival through the system, we request that these 316(b) requirements *do not* interfere with the current testing or deployment of advanced fish passage technologies on the CRS. Maximizing the availability of tools to encourage greater survival of ESA-listed species, provides the Action Agencies' with greater operational flexibility that may extend to water quality benefits.

Finally, from a good governance perspective, if EPA is going to create precedent and impose new 316(b) permitting conditions on hydroelectric facilities, the agency should go through a formal national rulemaking process with full notice and public comment. This will allow not only stakeholders in the Northwest to participate in the rulemaking, but encourage all interested parties nationwide to impact the outcome.

Thank you for the opportunity to comment on this proposal. PNGC Power looks forward to working with EPA throughout this important public process and into the future.

Best regards,

R. Ashley Slater

Ashley Slater
Vice President, Government Affairs and Policy
PNGC Power

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May 4, 2020

US Environmental Protection Agency, Region 10
Jennifer Wu
Wu.Jennifer@epa.gov

Submitted electronically

RE: Draft NPDES permits at the four Lower Columbia and four Lower Snake Rivers Dams

Dear Ms. Wu:

The Public Power Council (PPC) appreciates this opportunity to comment on EPA's draft National Pollutant Discharge Elimination System (NPDES) permits at eight federal hydro facilities on the Lower Columbia and Lower Snake Rivers. The draft NPDES permits would authorize discharges from cooling water, equipment, floor drains, sumps, facility maintenance water, and other miscellaneous discharges. These individual permits are:

- Ice Harbor Lock and Dam, NPDES Permit No. WA0026816
- Lower Monumental Lock and Dam, NPDES Permit No. WA0026808
- Little Goose Lock and Dam, NPDES Permit No. WA0026786
- Lower Granite Lock and Dam, NPDES Permit No. WA0026794
- Bonneville Project, NPDES Permit No. WA0026778
- The Dalles Lock and Dam, NPDES Permit No. WA0026701
- John Day Project, NPDES Permit No. WA0026832
- McNary Lock and Dam, NPDES Permit No. WA0026824

Public Power Council

PPC represents the non-profit, community-owned public utility customers that have statutory priority to purchase at cost the output of the Federal Columbia River Power System (FCRPS) from the Bonneville Power Administration (BPA).

BPA's wholesale power customers depend on hydropower from the federal system to serve the residents of the Northwest with affordable, reliable, carbon-free power at cost. The wholesale power rates paid by Northwest public power recover the costs of the

FCRPS, including extensive fish and wildlife mitigation programs throughout the region, and costs related to reporting and monitoring of effluent as covered in the NPDES permits.

Scope of NPDES Permits

PPC is supportive of monitoring and reporting that measurably maintains or improves the water quality of the Columbia River System due to hydro facility effluent, without being unduly burdensome or overextending the intended scope and purpose of the related permits or certifications. In this context, the NPDES permits should be limited to the material impacts of pollutant effluent discharges that result from dam operations. As they are currently written, the draft NPDES permits over-extend EPA's jurisdiction and the purpose of the NPDES permits in ways that are unduly burdensome and could result in loss of adaptive management capability or could conflict with other agreements and obligations.

EPA's own analyses, as well as measurements and analysis in accordance with other reporting mandates, indicate that processes at these federal facilities and the resulting effluent have little to no impact on parameters such as temperature, pH, Total Suspended Solids (TSS), Biochemical Oxygen Demand (BOD), and Chemical Oxygen Demand (COD). Monitoring and reporting for these is burdensome and should be excluded from the final permits. Monitoring and reporting for oil and grease should be practicable and reasonable, and EPA should work with the Corps to determine appropriate conditions for these. Finally, any power, turbine operating, or other conditions related to the Clean Water Act 316(b) are covered by the Endangered Species Act and are outside the scope and purpose of these permits and EPA's regulatory authority.

Clean Water Act section 316(b)

PPC shares the National Hydropower Association and American Public Power Association's concerns regarding the misapplication of section 316(b) to hydro facilities. Notwithstanding this issue, PPC believes that EPA's inclusion of technologies and practices beyond the Cooling Water Intake Structure (CWIS), such as turbine efficiency and fish passage structures, to satisfy 316(b) requirements, is inappropriate. As such, Section II(E)(2)(a-e) should be removed from the final permits.

Any impact to fish and other organisms from water passing through the dams is already regulated, monitored, and managed through the Endangered Species Act, the Pacific Northwest Electric Power Planning and Conservation Act of 1980 and other relevant statutes. Existing documents and protocols have been developed through extensive stakeholder engagement, scientific analysis, and thorough review. Inclusion of conditions that extend beyond the CWIS and overlap with these and other regulations

exceed EPA's regulatory authority, are redundant, and could negatively impact the operations and adaptive management of the dams for their multiple authorized purposes.

Four-Factor Test and Application of Best Professional Judgement

EPA's Fact Sheets for these permits note the ambiguity of 316(b) rules with respect to hydropower, and in response, EPA staff have come up with a four-factor test and application of "Best Professional Judgment" to determine compliance with 316(b)[1]. While this four-factor test is an understandable attempt to create a middle-ground and alternate compliance path, as applied, it over-extends EPA's authority and results in inappropriate conditions being placed on the dams.

A facility which satisfies any one of the factors in the four-factor test should meet the "Best Technology Available" requirement and be considered compliant. This application of the proposed test is reasonable given the purpose of the 316(b) statute and the nature of hydro CWIS impacts; 316(b) is intended to minimize the adverse impacts of the CWIS to fish and aquatic organisms, and hydro facility CWIS impacts are typically minimal. Satisfying one factor, such as the percentage of water volume withdrawn for CWIS relative to total waterbody flow, should be sufficient to show that a facility's CWIS presents a de minimis impact to fish and other organisms and constitutes the "Best Technology Available" for cooling.

Hydro facilities do not use water for cooling in the same way as thermal generation facilities do, so the design, purpose, and scale of hydro CWIS are materially different from those of thermal plants; as well, the resulting impact from hydro CWIS to aquatic life is minimal. The size of the CWIS for hydropower facilities is insignificant in comparison to the overall size of the penstock and scroll case, and CWIS account for a minimal amount of river flows for the federal dams to which these permits apply. Similarly, when considering the amount of power generated compared to the volume of water drawn through the CWIS, as suggested by factor one, hydro facilities would typically be considered a "Best Technology Available," and should be deemed compliant.

The four-factor test should proceed in a stepwise manor. Under this application, a facility that meets the first criteria would be considered compliant and would not need to proceed to the next factor or comply with additional conditions. If the facility did not meet a given criteria, it would proceed to the next, and so forth. Using these procedures should result in a more reasonable and practicable application of 316(b) to hydro facilities.

Requirements should be Practicable, Impactful, and not Unduly Burdensome

[1] EPA NPDES Permit Fact Sheet for U.S. Army Corp of Engineers Lower Columbia Hydroelectric Facilities, March 2020, p.52.

To align with the material impacts of the dams and to avoid being unduly burdensome, the final NPDES permits should not include monitoring for TSS, BOD, COD, or pH. The federal dams do not affect these parameters, and monitoring for them will not produce useful data or result in improvements to water quality. As an example, the NPDES Fact Sheet for the Lower Columbia dams notes that there were no pH values outside the desired range at the Bonneville Project, John Day Project, and McNary Lock and Dam[2]. The only measurements above the range were for outflows related to transformer cooling water, and these are scheduled to be disconnected within the next five years. Monitoring for these will cause undue burden and cost without providing meaningful benefits to water quality or data collection.

Similar to the discussion of pH and TSS above, the amount of water passing through dam CWIS and other systems that result in effluent discharges is negligible compared with overall waterflows through the dam. EPA's Fact Sheets recognize this and offer several data points showing that the impacts to river water temperatures from cooling water discharge are de minimis[3]. Despite this acknowledgment, the permits still call for continuous temperature monitoring. This inclusion was made in light of forthcoming TMDL temperature limits for the Snake River and the impact of river temperature on protected salmonid populations. Temperature monitoring is already addressed in other processes and should not be included as a requirement under the NPDES permits. These facilities' cooling water discharges have minimal impacts to river temperature and additional monitoring of these discharges for temperature is not appropriate.

Oil and grease discharges are the most likely and potentially significant effluent discharges from the dams, and while there should be monitoring of these, the requirements of the draft NPDES permit are excessive. These dams are run-of-river, and their impacts from discharges are similar across their spans, so requiring monitoring and reporting for every outfall would cause undue burden and cost. The necessary information can be collected from a subgroup of each dam's outfalls.

Additionally, as noted in the Fact Sheets, it is possible to perform visual inspections of the water surface, and these inspections are adequate to alert dam operators of any changes in conditions or potential problems. This visual analysis meets the narrative criteria of Washington state water quality standards[4], and the specific measurement parameters set forth in the draft NPDES permits are not necessary at every outfall to ensure water quality. EPA should work with the Corps to develop a monitoring and

[2] EPA NPDES Permit Fact Sheet for U.S. Army Corp of Engineers Lower Columbia Hydroelectric Facilities, March 2020, p.43.
[3] EPA NPDES Permit Fact Sheet for U.S. Army Corp of Engineers Lower Columbia Hydroelectric Facilities, March 2020, p.46.
[4] EPA NPDES Permit Fact Sheet for U.S. Army Corp of Engineers Lower Columbia Hydroelectric Facilities, March 2020, p.44.

management plan that adequately addresses effluent discharges without causing undue burden.

Adaptive Management

The final NPDES permits should have clear language that supports continued adaptive management and monitoring at the federal facilities. Regional policy, dam operations, and river conditions are in continual flux, and the permits should be drafted in such a way that they do not impinge upon or conflict with the adaptive management plans provided in the CRSO EIS, BiOp, or other regional documents. The final NPDES permits should reflect the material impacts of the dams and the monitoring requirements should be reasonable and representative of these.

Thank you for your consideration of the comments.

Sincerely,

Scott Simms

Executive Director of the Public Power Council

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, NORTHWESTERN DIVISION
PO BOX 2870
PORTLAND, OR 97208-2870

4 May 2020

SUBJECT: USACE Comments to EPA's DRAFT Proposed NPDES Permits for Lower Columbia River Hydroelectric Facilities: Bonneville Lock and Dam (#WA0026778), The Dalles Lock and Dam (#WA0026701), John Day Lock and Dam (#WA0026832), and McNary Lock and Dam (#WA0026824); Lower Snake River Hydroelectric Facilities: Ice Harbor Lock and Dam (#WA0026816), Lower Monumental Lock and Dam (#WA0026808), Little Goose Lock and Dam (#WA0026786), and Lower Granite Lock and Dam (#WA0026794) within the State of Washington; and Lower Columbia River and Lower Snake River Fact Sheets.

Jenny Wu
Environmental Engineer, NPDES Permits Section
Office of Water and Watersheds
U.S. EPA, Region 10
1200 6th Ave, Suite 155 (19-CO4)
Seattle, WA 98101

Dear Ms. Wu:

On behalf of the U.S. Army Corps of Engineers ("Corps") Northwestern Division, I submit the following comments on the Environmental Protection Agency's ("EPA") draft National Pollutant Discharge Elimination System ("NPDES") permits for the Corps' four lower Snake River and four lower Columbia River dams. These permits are as follows:

- Lower Columbia River Hydroelectric Facilities:
  - Bonneville Lock and Dam (#WA0026778),
  - The Dalles Lock and Dam (#WA0026701),
  - John Day Lock and Dam (#WA0026832), and
  - McNary Lock and Dam (#WA0026824);
- Lower Snake River Hydroelectric Facilities:
  - Ice Harbor Lock and Dam (#WA0026816),
  - Lower Monumental Lock and Dam (#WA0026808),
  - Little Goose Lock and Dam (#WA0026786), and
  - Lower Granite Lock and Dam (#WA0026794) within the State of Washington; and
- Lower Columbia River and Lower Snake River Fact Sheets.

The Corps' comments are organized in the following manner:

SECTION A - Comments that Apply to All Eight (8) Draft NPDES Permits
SECTION B (1) - Comments Specific to All Draft Lower Columbia River Permits
SECTION B (2) - Comments Specific to All Draft Lower Snake River Permits
SECTION C (1) - Comments Specific to Individual Draft Lower Columbia River Permits

SECTION C (2) - Comments Specific to Individual Draft Lower Snake River Permits
SECTION D (1) - Comments Specific to the Lower Columbia River Fact Sheet
SECTION D (2) - Comments Specific to the Lower Snake River Fact Sheet

SECTION A - Comments that Apply to All Eight (8) Draft NPDES Permits (#WA0026778; #WA0026701; #WA0026832; #WA0026824; #WA0026816; #WA0026808; #WA0026786 and #WA0026794)

The requirements contained in the NPDES permits should be focused on regulating the discharges from the discrete point sources described in the Corps' NPDES permit applications, as opposed to the facilities as a whole. Additionally, the conditions in the NPDES permits, or the Washington Department of Ecology's associated 401 Certifications, should not impair the Corps' ability to effectively operate and maintain the dams for the multiple Congressionally-authorized purposes, nor interfere with the Corps' compliance with other laws. Further, the language of the Clean Water Act ("CWA") explicitly recognizes that the provisions of the CWA cannot be construed to affect the Corps' ability to maintain navigation. *See* 33 USC 1371(a); *In re Operation of Missouri River System Litigation*, 418 F.3d 915 (8th Cir. 2005).

Schedule of Submissions (Table of Contents)

Section A - Comment 1

Annual reports identified in the Table of Contents and throughout the permit are identified with a due date of 31 December. To provide for adequate time to complete annual reports for Best Management Practices ("BMP"), Environmentally Acceptable Lubricant ("EAL"), Cooling Water Intake Structure ("CWIS"), PCBs, etc., all annual reports should be due on 28 February.

Limitations and Monitoring Requirements:

Section A - Comment 2

I.B.4. Effluent Limitations and Monitoring

No frequency of visual observation of outfalls is provided in the permit. The Corps recommends observations at the same frequency as grab samples of outfalls be included as a permit requirement.

Section A - Comment 3

I.B. Table 1, Effluent Limitations and Monitoring Requirements, Parameter: pH, Oil and Grease

Weekly sampling requirements are redundant and not necessary given the low risk and high cost of weekly sampling. If any sampling is required, quarterly sampling would be adequate and preferred. Previous sampling has determined a low risk of oil discharge through cooling water and drainage systems, and any release is likely to be detected through project specific oil accountability procedures. Because this requirement is redundant to existing monitoring processes, it is not necessary to achieve limitations/standards to meet the intent of the Clean Water Act, and will only increase costs for each facility.

Section A - Comment 4
I.B. Table 1, Table 2, Effluent Limitations and Monitoring Requirements

The draft NPDES permits require a monthly measurement of discharge flow. Measuring the discharge of each outfall is not feasible. The Corps recommends changing the language to "calculate" flow. The flow will be calculated using the best available information, including design flows, and based on how long that outfall operated.

Section A - Comment 5
I.B. Table 3, Effluent Limitations and Monitoring Requirements

The date that sampling must begin is not specifically identified in permit. The requirement to conduct sampling should commence once the QAP is completed. Sampling prior to that may result in samples that will not meet quality assurance guidelines. If temperature monitoring remains a requirement in the permits, the Corps requests to perform six months of temperature monitoring to determine if ongoing temperature monitoring is justified or can be discontinued.

II. Special Conditions
Section A - Comment 6
II.B.1. Best Management Practices

In the EPA "Guidance Manual for Developing Best Management Practices (BMPs)" it states that while Section 304(e) of the CWA restricts the application of BMPs to ancillary sources and certain chemicals, 40 C.F.R. § 122.44(k) authorizes the use of BMPs to abate the discharge of pollutants when: (1) they are developed in accordance with Section 304(e) of the CWA; (2) numeric limitations are infeasible; or (3) the practices are necessary to achieve limitations/standards or meet the intent of the CWA. Because the dams are not industrial manufacturers or treat any process waste, and the intent of the permit is to regulate the discharges associated with operation of equipment at a hydropower plant, the Corps of Engineers requests the removal of the BMP requirement because it is unnecessary. The project specific Spill Prevention Control and Countermeasure (SPCC) Plans more adequately address the concern for housekeeping, site run off, inspections, security, training, and loading/unloading, and projects have a site-specific Oil Accountability Program. In addition, the projects maintain a robust dangerous/hazardous waste program in compliance with Washington Department of Ecology and/or Oregon Department of Environmental Quality's RCRA regulations and are typically considered Small Quantity Generators. The requirements in Appendix B are redundant and overreaching for a facility that is an end user of a small amount of products.

Section A - Comment 7
II.B.5 Reporting BMP Incidents

Corps does not believe any BMPs are warranted due to work practices that are already in place, but BMP incidents (II.B.5) should fall into the category of "other non-compliance reporting" (III.H) and be reported with monitoring reports for Part III.B. This will limit the

number of required report submittals, lowering the cost of compliance, without impacting discharge.

Section A - Comment 8
II.D. PCB Management Plan

The PCB Management Plan and reporting requirements are overly broad and unjustified, especially given that the permit specifically prohibits the discharge of PCBs. The permit Fact Sheets do not identify any historic sampling that found discharges of PCBs from the identified outfalls, and there is no indication that permitted discharges/outfalls may include PCBs in the future. 33 U.S.C. § 1314(e) [Section 304(e)] does authorize EPA to promulgate regulations to establish BMPs at the facility to prevent runoff, spillage, or leaks of toxic substances (e.g., PCBs) located at a facility, but there must be some indication such toxic substances "may contribute significant amounts of such pollutants to navigable waters." In other words, there must be some reasonable likelihood the PCBs will become part of the permitted discharges.

Similarly, 40 C.F.R. § 122.44(k) allows the establishment of BMPs to "control or abate the discharge of pollutants." However, there should be some likelihood the PCBs will become part of the permitted discharges to justify the expense, resources, and effort needed to comply with such PCB requirements. Sampling and identification of PCB-containing equipment has historically been conducted at the facilities as required by the TSCA. The PCB requirements go well beyond the TSCA and are unnecessary given the lack of PCBs in any of the samples submitted to EPA during the application process. The PCB monitoring, plan, and annual reporting requirements are not justified, overly burdensome, and should be removed from the permits. The Corps also has a yearly requirement to report any PCBs disposed of or stored at the facilities. If EPA includes any PCB monitoring or reporting requirements in the permits, the requirement to include a list describing all sources of PCBs on the premises previously removed, replaced, remediated. or reclassified should be removed as unnecessary and overly burdensome, as these materials have already been removed and cannot result in a discharge relevant to the permit. The same is true for the requirement to describe actions that have been established prior to the issuance of this permit to prevent and/or track releases of PCBs from potential PCB sources. There is also no need to sample paint and caulking, especially since it is not a potential source of PCBs in relation to the facilities' outfalls.

Section A - Comment 9
II.D. PCB Management Plan

The PCB monitoring, plan, and annual report should be removed from the permits. Prior sampling of permitted discharges have not identified any PCBs, and there is no reason to believe the permitted discharges/outfalls may include PCBs in the future. The PCB monitoring, plan, and annual report requirements are not justified, unnecessary, and overly burdensome, especially given the permits specifically prohibit the discharge of PCBs.

Section A - Comment 10
II.E. Cooling Water Intake Structure ("CWIS") Requirements to Minimize Adverse Impacts from Impingement and Entrainment [General]:

The Corps requests removal of Part E in its entirety as ESA compliance is consulted on between the National Marine Fisheries Service and the U.S. Fish and Wildlife Services ("Services") and the Action Agencies. EPA does not have jurisdiction over compliance with the ESA, and the NPDES permit should not include ESA requirements that have been previously consulted on with the Services.

Further, the Corps disagrees with EPA that CWA Section 316(b) and EPA's implementing rules for cooling water intake structure requirements apply to hydropower facilities. Therefore, these requirements should be removed from these draft NPDES permits. However, if EPA continues to assert that Section 316(b) applies to hydropower facilities, the Corps would like to note that these facilities already meet all four 316(b) factors, and therefore the NPDES permits and associated 401 Certifications should not contain 316(b) cooling water impingement and entrainment restrictions and conditions. However, if EPA decides to include the section in its entirety, please consider the comments below on specific changes.

Section A - Comment 11
II.E. Cooling Water Intake Structure ("CWIS") Requirements to Minimize Adverse Impacts from Impingement and Entrainment [General]

If Section E remains in the final NPDES permits despite the fact that ESA consultation is reserved for the Services and Action Agencies, the Corps recommends the following:

(1) Please add a description of the Columbia River System, Regional Forum workgroups, e.g., weekly Technical Management Team meetings, to properly characterize the Corps' responsibilities during in-season operations, and

(2) The eight draft NPDES permits do not recognize that the Fish Passage Plan, which includes the Fish Operations Plan, changes annually. Therefore, the Corps recommends the following rewrite of Section II.E.2 in each of the eight draft NPDES permits to clarify that this section is satisfied based on the requirements in the annual Fish Passage Plan, including the Fish Operations Plan. The Corps recommends that **Section II.E. Cooling Water Intake Structure Requirements to Minimize Adverse Impacts from Impingement and Entrainment**, subsection (2), should read: "EPA has determined that the ~~following~~ existing requirements <u>as specified in the most recent Fish Passage Plan, including the Fish Operations Plan,</u> are sufficient to satisfy the BTA requirement to minimize entrainment and to minimize impingement mortality." Adding the underlined language to each of the eight permits would clarify EPA's intent that the measures identified in the annual Fish Passage Plan, including the Fish Operations Plan, satisfy the BTA requirements.

Section A - Comment 12
II.E.2.(a). CWIS Requirements to Minimize Adverse Impacts from Impingement and Entrainment.

If EPA does not remove this section in its entirety, please remove provision (a) regarding "…spill releases over dam spillways." The Corps is already complying with Section 316(b), and therefore this section is unnecessary. However, if EPA does not remove this specific provision and does not revise as recommended in Section A – Comment 11, please include the clause "...or as specified in the most recent Fish Passage Plan."

Section A - Comment 13
II.E.2.(b). CWIS Requirements to Minimize Adverse Impacts from Impingement and Entrainment.

If EPA does not remove this section in its entirety, please remove provision (b). The Corps is already complying with Section 316(b), and therefore this section is unnecessary. However, if EPA does not remove this specific provision and does not revise as recommended in Section A – Comment 11, please include the clause "...or as specified in the most recent Fish Passage Plan."

Section A - Comment 14
II.E.2.(c). CWIS Requirements to Minimize Adverse Impacts from Impingement and Entrainment.

The requirements regarding operating "…turbines within +/- 1% peak efficiency, or as specified in the most recent Fish Passage Plan" is unnecessary and should be removed from the NPDES permits. The NPDES permits should focus on discharges, not turbine operations that are already fully described in the annual Fish Passage Plan, a requirement from the Action Agencies' ESA consultations. If EPA does not remove this specific provision and does not revise as recommended in Section A – Comment 11, please retain the clause "...or as specified in the most recent Fish Passage Plan."

Section A - Comment 15
II.E.2.(d). CWIS Requirements to Minimize Adverse Impacts from Impingement and Entrainment.

Please remove provision (d) in its entirety as ESA compliance is consulted on between the Services and the Action Agencies. EPA does not have a role, and the NPDES permit should not include requirements that have been previously consulted on, including operating "…turbines in priority order to maximize fish passage". These operations are fully described in the annual Fish Passage Plan, a requirement of the Action Agencies ESA consultation. Additionally, this permit should focus on discharges, not operations of the turbines. However, if EPA does not remove this specific provision and does not revise as recommended in Section A – Comment 11, please include the clause "...or as specified in the most recent Fish Passage Plan."

IV. Compliance Responsibilities

Section A - Comment 16

IV.B.1. Civil and Administrative Penalties and IV.B.2 Administrative Penalties

Please strike IV.B.1 and IV.B.2. The United States is excluded from the definition of "person" under the CWA. 33 U.S.C. § 1362(5); See also *United States Dep't of Energy v. Ohio*, 503 U.S. 607 (1992).

Appendix B

Section A - Comment 17

B.2. & B.3. BMP Plan

The Corps does not believe any BMPs associated with Oil Accountability are warranted due to work practices that are already in place and EPA's failure to establish a connection between oil products and the permitted discharges/outfalls. For example, the Oil Accountability, Tracking, and Reporting requirements in Appendix B.3 is redundant with Section 311 SPCC Plans. This appears to be an attempt to regulate the facility as a whole under CWA Section 402. Any language that attempts to regulate the facility as a whole should be removed from the permit.

Section A - Comment 18

B.5. BMP Plan

The Corps does not believe any BMPs are warranted due to work practices that are already in place but the term "significant" in the inventory of exposed materials (App B 5) should be defined as quantities over 55 gallons.

Section A - Comment 19

B.7. BMP Plan

The Corps does not believe any BMPs are warranted due to work practices that are already in place and the existing data that was already submitted as part of the application process. Additionally, this data is already included in monthly discharge monitoring reports. The Corps requests removal of sampling data in the Best Management Plan because it is redundant and unnecessary.

Section A - Comment 20

B.9. BMP Plan

The Corps does not believe any BMPs are warranted due to work practices that are already in place but if the section is not removed in its entirety, please remove requirement "9" from Appendix B, Best Management Practices *and* the requirement in Best Management Practices Plan (Section II.B). This provision is an ESA compliance issue that is consulted on between the Services and the Action Agencies. EPA does not have a role, and the NPDES permit should not include requirements that have been previously consulted on. This provision fails to identify a connection between the maintenance procedures and the permitted

discharges/outfalls. This section is entirely duplicative with existing ESA consultation processes and products, and EPA should not attempt to enforce Biological Opinion requirements via CWA NPDES permits.

Section A - Comment 21
B.10. BMP Plan

The Corps does not believe any BMPs are warranted due to work practices that are already in place, and requests removal of this provision. The BMP plan appears to be an attempt to regulate the facility as a whole under Section 402 and not just the permitted discharges -- i.e., no required nexus with the permitted discharge.

SECTION B (1) - Comments Specific to All Draft Lower Columbia River NPDES Permits (#WA0026778; #WA0026701; #WA0026832; and #WA0026824)

Section B (1) - Comment 1
I. Limitations and Monitoring Requirements B. Effluent Limitations and Monitoring 4.

Foam, floating, suspended, or submerged matter near outfalls generally consists of material already in the river such as pollen, algae, and woody-material that is being passed through the facility (and therefore exempt from the permit). Please provide clarification that material that has passed through the facility is not subject to consideration in this permit nor is a violation of the permit. Clarify the term "trace."

Section B (1) - Comment 2
I. Limitations and Monitoring Requirements Table 1, Table 2, and Table 3.

The site specific criteria in Oregon is 7 to 8.5 standard units. No processes that modify pH are in place at the hydropower facilities, and there are only anecdotal reports that at times the specific portions of the Columbia River may exceed these limits. Recommend that language be added to the permit as follows: between 7-8.5, if this is exceeded, pH must be within .5 standard units of influent.

Section B (1) - Comment 3
I. Limitations and Monitoring Requirements Table 1, Table 2, and Table 3.

The Fact Sheet references several Washington state permits to establish a dry dock discharge level of 5 mg/l daily maximum to protect water quality. That daily maximum is described in WA 0031411 as "Maximum daily effluent limit is the highest allowable daily discharge. The daily discharge is the average discharge of a pollutant measured during a calendar day. For pollutants with limits expressed in units of mass, calculate the daily discharge as the total mass of the pollutant discharged over the day." The permit limits for oil and grease should be modified to include this language.

SECTION B (2) - Comments Specific to All Draft Lower Snake River Permits (#WA0026816; #WA0026808; #WA0026786; and #WA0026794)

Section B (2) - Comment 1
Section I.A. & I.B.4. Effluent Limitations and Monitoring:

The Corps requests that language concerning oil spills be tied to permitted outfalls only. The requirement in the NPDES permits should be to only report sheens from outfalls that are permitted by that specific permit. Other spills are reported in compliance with CWA Section 311.

Section B (2) - Comment 2
I.B. Effluent Limitations and Monitoring:

If potential temperature effects are minimal (*see* Table 10 in the Fact Sheet), there is no need for such robust temperature monitoring and reports. Please remove or edit this provision accordingly.

SECTION C (1) - Comments Specific to Individual Draft Lower Columbia River Permits:

Section C (1) - Comment 1
Title Page List of Outfalls - Bonneville Lock and Dam (#WA0026778)

Since the original permit application, the Corps has made improvements to the Powerhouse oil-water separator ("OWS") resulting in the addition of an additional outfall. Please add this outfall to the permit as #16. It is otherwise identical to the existing OWS outfall #12.

Section C (1) - Comment 2
Outfalls - The Dalles Lock and Dam (#WA0026701)

The permit information is out of date. The following outfalls no longer discharge from water-cooled transformers: 022, 023, 026, 027, 028, and 029. Additionally, by the end of 2020, outfalls 018, 019, 030, and 031 are scheduled to be discontinued.

SECTION C (2) - Comments Specific to Individual Draft Lower Snake River Permits:

Section C (2) - Comment 1
I.B. Effluent Limitations and Monitoring - Lower Monumental Lock and Dam (#WA0026808)

The Corps disagrees with the requirement to monitor the identified outfalls weekly for pH, Oil and Grease as this would be overly burdensome. Lower Monumental maintains a robust Oil Accountability Program for strict control of the inventory of oil and inspections of all oil-filled equipment. There are numerous times throughout the year when there will be no discharge from a unit, non-contact cooling water discharge, or the discharge will be sporadic. Weekly

sampling would be problematic if the unit were to run on the weekends with only one operator on shift for three days.

Section C (2) - Comment 2
I.B. Effluent Limitations and Monitoring - Lower Monumental Lock and Dam #WA0026808

For outfall 004 Emergency Diesel Generator, weekly sampling is not practical and will add wear and tear to equipment and increase operating costs. The generator is only used when the dam trips off line, which is very infrequent. There is a preventative maintenance work order to start and run the generator once a month. The small amount of run time will not contribute to reliable data concerning temperature load for the river system during the short run times.

Section C (2) - Comment 3
Outfalls - Little Goose Lock and Dam (#WA0026786)

The Navigation Lock Fill Valve Sump, outfall #13, is no longer a wet sump and has zero discharges. The Corps requests this outfall be removed from the permit.

Section C (2) - Comment 4
Outfalls - Lower Granite Lock and Dam (#WA0026794)

The Corps requests to delete outfall #13 on page #1 as it is an error.

SECTION D (1) - Comments Specific to the Lower Columbia River Fact Sheet:

Section D (1) - Comment 1
Title Page – List of Outfalls – Bonneville Dam

Since the original permit application, the Corps has made improvements to the Powerhouse OWS resulting in the addition of an additional outfall. Please add this outfall to the Fact Sheet as #16. It is otherwise identical to the existing OWS outfall #12.

Section D (1) - Comment 2
I.A. Background Information, General Information Table 1, 2, 3

The Fact Sheet information is out of date. For Table 1, update the Facility Contact with the phone number 541-374-3850. If Facility Operator is added to Table 1, please provide as COL Aaron Dorf, P.O. Box 2946, Portland, OR 97208. For Table 2, update the facility contact number to 541-506-8300, and Operator Name to COL Aaron Dorf. For Table 3, update the Facility Contact to Monica Carter, 541-739-1128, and Operator Name to COL Aaron Dorf.

Section D (1) - Comment 3
I.A. Background Information, General Information Table 2

The Fact Sheet information is out of date. The following outfalls no longer discharge from water-cooled transformers: 022, 023, 026, 027, 028, and 029. Additionally, by the end of 2020, outfalls 018, 019, 030, and 031 are scheduled to be discontinued.

Section D (1) - Comment 4
Facility Contact Table 4 - McNary Lock and Dam

The Corps requests that the facility Contact be changed to Timothy Roberts (OPM), (541) 219-2251.

Section D (1) - Comment 5
B. Permit History

Please correct the date to August 14, 2014.

Section D (1) - Comment 6
III. Effluent Limitations and Monitoring

The Fact Sheet references several Washington state permits to establish a dry dock discharge level of 5 mg/l daily maximum. That daily maximum is described in WA 0031411 as "Maximum daily effluent limit is the highest allowable daily discharge. The daily discharge is the average discharge of a pollutant measured during a calendar day. For pollutants with limits expressed in units of mass, calculate the daily discharge as the total mass of the pollutant discharged over the day." The permit limits for oil and grease should be modified to include this language.

Section D (1) - Comment 7
III. Effluent Limits and Monitoring

The site specific criteria in Oregon is 7 to 8.5 standard units. No processes that modify pH are in place at the hydropower facilities and there are only anecdotal reports that portions of the Columbia River may occasionally exceed these limits. The Corps recommends that language be added to the permit as follows: between 7-8.5, if the limit of 7-8.5 is exceeded pH must be within .5 standard units of influent.

Section D (1) - Comment 8
Table 18

Survival rates estimated for the following projects do not represent the complete study results:

-Bonneville is reported to be 96-98% survival for 2011-2012. It should be 95-99% survival for 2006-2012 and 2018.

-The Dalles is reported to be 94-99% survival for 2010-2012. It should be 95-99% survival for 2010-2012 [this is likely a rounding error].
-John Day is reported to be 94-99% for 2011 & 2012. It should be 92-99% for 2010-2014.

Section D (1) - Comment 9
VII. Other Legal Requirements

The Corps requests a second comment period on the draft permits if any changes are made as a result of the Washington Department of Ecology's issuance of the Section 401 Certifications.

SECTION D (2) - Comments Specific to the Lower Snake River Fact Sheet:

Section D (2) - Comment 1
Table 1.

The Corps requests that the facility Contact be changed to Brian Vorheis (OPM), (509) 543-3256

Section D (2) - Comment 2
Table 2.

The Corps requests that the facility Contact be changed to Jeannette Wilson (OPM), (509) 282-7251

Section D (2) - Comment 3
Table 3.

The Corps requests that the facility Contact be changed to Norman Bloom (OPM), (509) 399-2233 ext. 251

Section D (2) - Comment 4
Table 4.

The Corps requests that the facility Contact be changed to Timothy Roberts (OPM), (541) 219-2251.

Section D (2) - Comment 5
I.C. Tribal Consultation

The Fact Sheet does not indicate the schedule associated with EPA's tribal consultation or what the implications are to the permit or permit conditions. EPA should provide rationale for not including other basin tribes. EPA should coordinate any conditions resulting from such consultation (if any) with the Corps before adding them to the draft permits.

Section D (2) - Comment 6
I.F. Types of Pollutants Associated with Facilities

The reference to PCBs in this section should be removed, as Table 9 (p.22) does not list PCBs as an effluent component. Section I.E does state, "Some transformers may have legacy polychlorinated biphenyls (PCBs), which can be released with cooling water," but that appears to be speculation, which does not justify the PCB monitoring, Plan and Report requirement.

Section D (2) - Comment 7
II.D. Impaired Waters/TMDLs and III. Effluent Limitations and Monitoring

The PCB monitoring, plan, and annual report should be removed from the permits. Prior sampling of permitted discharges have not identified any PCBs and there is no reason to believe the permitted discharges/outfalls may include PCBs in the future. The PCB monitoring, plan, and annual report requirements are not justified, unnecessary and overly burdensome, especially given the permits specifically prohibits the discharge of PCBs.

Section D (2) - Comment 8
II.D. Impaired Waters/TMDLs

Given the conclusions reached by EPA, there is very little justification for requiring such robust (in-depth) water temperature monitoring and reporting. Table 10 shows no increase of effluent from background influent at three of the four lower Snake River dams and only a minor increase at Little Goose.

Section D (2) - Comment 9
II.D. Impaired Waters/TMDLs

EPA makes, at most, a case for limited monitoring and data collection (i.e., limited data set). The fact that "temperature is important in the Snake River" does not justify robust and expensive monitoring given the best available information and conclusions provided in this section. EPA acknowledges *de minimis* temperature influences from cooling water uses on overall river temperatures, yet requires a continuous representative sample point per outfall type.

Section D (2) - Comment 10
II.D. Impaired Waters/TMDLs

Please clarify which heat pump EPA believes is discharging COD. EPA does not adequately justify this quarterly monitoring requirement associated with the unspecified heat pump, which is not expected to add or concentrate organic material.

Section D (2) - Comment 11
III. Effluent Limitations and Monitoring - Table 11

Current hydrocarbon monitors (at least from 2012 timeframe, approximately) are only reliable down to 10ppm. Measuring at the level included will require laboratory analyses. The

basis for this effluent level is anecdotal at best, being based on existing permits intended to establish (administrative) controls and the MDL (minimum detectable limit). The basis does not cite concentrations that produce a sheen, which is the specific requirement. The Corps requests that the limitation be increased to 15 mg/L.

Section D (2) - Comment 12
III. Effluent Limitations and Monitoring

The Fact Sheet references several Washington state permits to establish a dry dock discharge level of 5 mg/l daily maximum. That daily maximum is described in WA 0031411 as "Maximum daily effluent limit is the highest allowable daily discharge. The daily discharge is the average discharge of a pollutant measured during a calendar day. For pollutants with limits expressed in units of mass, calculate the daily discharge as the total mass of the pollutant discharged over the day." The permit limits for oil and grease should be modified to include this language.

Section D (2) - Comment 13
III. Effluent Limits and Monitoring

The site specific criteria in Oregon is 6.5 to 8.5 standard units. No processes that modify pH are in place at the hydropower facilities, and there are only anecdotal reports that portions of the Columbia River may occasionally exceed these limits. The Corps recommends that language be added to the permit as follows: between 6.5-8.5, if the limit of 6.5-8.5 is exceeded, pH must be within .5 standard units of influent.

Section D (2) - Comment 14
III. Effluent Limitations and Monitoring

The Corps does not believe any BMPs are warranted due to work practices that are already in place, and the Fact Sheet seems to support this reasoning in Section III with recognition of the low effluent concentrations of oil and grease.

Section D (2) - Comment 15
III. Effluent Limitations and Monitoring

The PCB monitoring, plan, and annual report should be removed from the permits. Prior sampling of permitted discharges have not identified any PCBs and there is no reason to believe the permitted discharges/outfalls may include PCBs in the future. The PCB monitoring, plan, and annual report requirements are not justified, unnecessary, and are overly burdensome, especially given the permits specifically prohibits the discharge of PCBs. If EPA includes any PCB monitoring or reporting requirements in the permits, the requirement to include a list describing all sources of PCBs on the premises previously removed, replaced, remediated, or reclassified should be removed as unnecessary and overly burdensome, as these materials have already been removed and cannot result in a discharge relevant to the permit. The same is true for the requirement to describe actions that have been established prior to the issuance of this permit to prevent and/or track releases of PCBs from potential PCB sources.

Section D (2) - Comment 16
III. Effluent Limitations and Monitoring

The minimal impact (*see* Table 10) does not justify the robust and expensive temperature monitoring and reporting requirements.

Section D (2) - Comment 17
IV. Monitoring and Reporting Requirements

The minimal impact (*see* Table 10) does not justify the robust and expensive temperature monitoring and reporting requirements.

Section D (2) - Comment 18
V. Special Conditions

The PCB Management Plan and reporting requirements are overly broad and unjustified, especially given the permits specifically prohibit the discharge of PCBs. The permit Fact Sheets do not identify any historic sampling that has found discharges of PCBs from the identified outfalls and there is no indication that permitted discharges/outfalls may include PCBs in the future. 33 U.S.C. § 1314(e) [Section 304(e)] does authorize EPA to promulgate regulations to establish BMPs at the facility to prevent runoff, spillage or leaks of toxic substances (e.g., PCBs) located at a facility, but there must be some indication such toxic substances "may contribute significant amounts of such pollutants to navigable waters." In other words, there must be some reasonable likelihood the PCBs will become part of the permitted discharges.

Similarly, 40 C.F.R. § 122.44(k) allows establishment of BMPs to "control or abate the discharge of pollutants." However, there should be some likelihood the PCBs will become part of the permitted discharges to justify the expense, resources and effort needed to comply with such PCB requirements. Sampling and identification of PCB containing equipment has historically been conducted at the facilities as required by the TSCA. The PCB requirements go well beyond the TSCA and are unnecessary given the lack of PCBs in any of the samples submitted to EPA during the application process. The PCB monitoring, plan, and annual reporting requirements are not justified, are overly burdensome, and should be removed from the permits. If EPA includes any PCB monitoring or reporting requirements in the permits, the requirement to include a list describing all sources of PCBs on the premises previously removed, replaced, remediated or reclassified should be removed as unnecessary and overly burdensome, as these materials have already been removed and cannot result in a discharge relevant to the permit. The same is true for the requirement to describe actions that have been established prior to the issuance of this permit to prevent and/or track releases of PCBs from potential PCB sources.

Section D (2) - Comment 19
V. Special Conditions:

Table 18 mentions "Turbine routes: operate turbines at +/- 1% peak efficiency flows, operate turbines in priority order to maximize fish passage." Table 18 should also mention that

the Corps has installed one fish friendly turbine (FFT) at Ice Harbor Dam, with a second FFT in progress, and plans for 14 FFTs at McNary Dam over the next 20 years.

Section D (2) - Comment 20
V. Special Conditions

The Corps requests that plan development is within 12 months from receiving authorization to discharge from EPA.

Section D (2) - Comment 21
V. Special Conditions

The Corps requests that the annual report submittal be February 28 for the previous year's annual report to align with the Corps' other reporting requirements.

Section D (2) - Comment 22
VI. Environmental Justice Considerations

EPA is permitting the discharges from a discrete point source at a currently operating federal facility, not the facility as a whole. Additionally, this section does not identify the "Census block group" or why/how the discharges would affect the group? The Corps recommends that the entire Environmental Justice section be deleted.

Section D (2) - Comment 23
VII. Other Legal Requirements, A. State Certification

The Corps requests a second comment period on the draft permits if any changes are made as a result of the State of Washington's Section 401 certification.

Section D (2) - Comment 24
VII. Other Legal Requirements, B. Endangered Species Act

Please define what "working with" the Services on ESA consultation means. The Corps requests a second comment period on the draft NPDES permits if any changes are made as a result of EPA's ESA consultation with the Services.

Section D (2) - Comment 25
VII. Other Legal Requirements, B. Endangered Species Act

Species found only in lower Columbia River should be removed from the lower Snake River Fact Sheet (e.g., Pacific eulachon/smelt).

Section D (2) - Comment 26
Documents available for further review

The Corps recommends that EPA fix the hyperlink and extend review/comment period by 60 days to allow for review of any 'additional information' that EPA may have used in their evaluation.

Section D (2) - Comment 27
Documents available for further review

Figure 7 (and other maps throughout) is of poor resolution and is unreadable. Please reproduce the maps and figures in the permit at a higher level of resolution to ensure readability. Consider other picture file types that scale better or covert more clearly to PDF.

Section D (2) - Comment 28
Table 18

The Corps noticed that:
-No data is reported for Lower Granite. Dam passage survival is estimated to be 92-99% for 2006 & 2018.
-No data is reported for Ice Harbor. Dam passage survival is estimated to be 95-99% for 2006 & 2007.

The Corps appreciates the opportunity to submit these comments for consideration. We look forward to continuing to work closely with EPA on the draft NPDES permits for the four lower Snake River and four lower Columbia River projects. If you have any questions regarding the comments above, please contact Ms. Patti Williams at 503-808-3897.

Sincerely,

Tony R. Kirk
Chief, PDS Operations Division
Northwestern Division, USACE

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FILE NO: 029142.0060075

May 4, 2020

Via E-Mail

Ms. Jennifer Wu
U.S. EPA, Region 10
1200 Sixth Avenue
Seattle, WA 98101
wu.jennifer@epa.gov
(206) 553-6328

Re: Comments of the Utility Water Act Group on the U.S. Environmental Protection Agency Region 10's Proposed National Pollutant Discharge Elimination System Permits for Federal Hydroelectric Facilities in the Lower Columbia and the Lower Snake Rivers

Dear Ms. Wu:

The Utility Water Act Group respectfully submits the following comments on the U.S. Environmental Protection Agency Region 10's proposed National Pollutant Discharge Elimination System permits for federal hydroelectric facilities in the Lower Columbia[1] and Lower Snake Rivers.[2] *See* Public Notices (Mar. 18, 2020). We appreciate the opportunity to provide comments on the proposed permits, which we believe raise significant issues for hydropower project operators across the country.

If you have any questions about these comments or wish to discuss the issues further, please contact Kerry McGrath at (202) 955-1519 or kmcgrath@HuntonAK.com

We appreciate your attention to this important matter.

[1] Permit Nos. WA0026778, WA0026701, WA0026832, and WA0026824.

[2] Permit Nos. WA0026816, WA0026808, WA0026786, and WA0026794.

Sincerely,

Kerry L. McGrath

Kerry L. McGrath
Hunton Andrews Kurth LLP
2200 Pennsylvania Avenue, NW
Washington, DC 20037
Counsel for the Utility Water Act Group

cc: David Ross, EPA Headquarters (Ross.davidp@epa.gov)
Anna Wildeman, EPA Headquarters (Wildeman.anna@epa.gov)
Andrew Sawyers, EPA Headquarters (Sawyers.andrew@epa.gov)

The Utility Water Act Group Comments on EPA Region 10 Proposed NPDES Permits for Federal Hydroelectric Facilities in the Lower Columbia and Lower Snake Rivers

May 4, 2020

Executive Summary

For nearly 50 years, since Congress passed the contemporary version of the Clean Water Act (CWA), the U.S. Environmental Protection Agency (EPA or Agency) has not applied nor considered applying the requirements of CWA § 316(b) to hydroelectric facilities, which often divert for cooling purposes only a very small percentage of the water they transfer in order to generate power. It is appropriate that EPA has not applied § 316(b) to hydroelectric facilities because they differ significantly from the land-based steam electric plants and other industrial facilities to which EPA has traditionally applied § 316(b). Hydroelectric facilities are designed specifically to use the movement of water to produce power, and that water movement is not subject to regulation under the National Pollutant Discharge Elimination System (NPDES) program. Further, such facilities and their environmental impacts are comprehensively regulated by other federal and state agencies, including the Federal Energy Regulatory Commission (FERC) through its extensive licensing process.

CWA § 316(b), by its terms, applies only where EPA establishes technology-based standards under §§ 301 and 306. EPA has never adopted uniform national technology-based standards for discharges of pollutants from hydroelectric facilities or determined that such facilities would be suitable for standards development. When EPA commenced rulemaking to implement § 316(b) in 2000, 2002, and 2011, it gave no indication that it intended to change its position on the inapplicability of § 316(b) to hydroelectric facilities. The Agency did not collect information about the number, characteristics, environmental impacts, availability of technologies, costs, or any other relevant factor for cooling water intake structures (CWISs) at hydropower facilities. The Agency did not identify hydropower facilities as potentially affected dischargers, it did not consider whether the CWIS definition or any of the regulatory thresholds made sense within the context of such facilities, nor did it solicit comments on the legal,

technical, environmental, and policy issues relevant to applying § 316(b) requirements to these facilities. Indeed, EPA specifically noted in its 2014 proposal that the proposed rule did not apply to hydroelectric facilities.

In 2018, Regions 1 and 10 indicated they were contemplating a change to EPA's long-standing position by proposing general permits that would apply § 316(b) and EPA's 2014 Existing Facilities Rule to hydroelectric facilities in Idaho, New Hampshire, and Massachusetts. As UWAG detailed in comments on each proposal, applying CWA § 316(b) to hydroelectric facilities, which do not have the type of CWISs on which the current § 316(b) regulations and requirements were developed, is neither compelled by nor consistent with the CWA. UWAG further argued that, even if CWA § 316(b) were applicable, it would be inappropriate to apply the 2014 Rule, which EPA expressly stated did not apply to hydroelectric facilities and the Agency adopted without any consideration of the legal, technical, or economic issues involved in applying § 316(b) to hydroelectric facilities. EPA Regions 1 and 10 have not finalized the proposed general permits and, to date, EPA has not addressed in writing the concerns UWAG raised within its comments.

Now, Region 10 proposes NPDES permits for a different set of hydropower facilities, eight federal hydroelectric facilities on the Lower Columbia and Lower Snake Rivers (Proposed Permits), which take a different approach on the § 316(b) issue. Although the draft Fact Sheets for the Proposed Permits appropriately determine that the 2014 Rule does not apply to hydropower facilities, EPA states that "all cooling water intake structures at hydroelectric facilities are subject to best professional judgment (BPJ) Section 316(b) cooling water intake structure conditions," pursuant to 40 C.F.R. § 125.90(b). The Draft Fact Sheets provide, for the first time, a four-factor BPJ framework for establishing case-by-case BPJ conditions that satisfy

BTA under § 316(b). The Region proposes to determine that, based on existing characteristics and technologies at the federal facilities at issue, those facilities satisfy best technology available (BTA) requirements under § 316(b).

The Region's proposal to apply CWA § 316(b), even on a BPJ case-by-case basis, to hydroelectric facilities is neither compelled by nor consistent with the CWA. Even if the statute leaves EPA room to interpret § 316(b) as applicable to such facilities, there are sound reasons for EPA to determine that it does not apply. First, interpreting CWA § 316(b) to apply to hydroelectric generation facilities, even on a BPJ basis, would be a significant expansion of EPA's regulatory jurisdiction. CWA § 316(b) applies only where EPA establishes technology-based standards under §§ 301 and 306. Unlike the largely land-based steam electric plants and industrial facilities for which EPA developed the 2014 Rule and every other § 316(b) rule the Agency has adopted, EPA has not established technology-based limitations and standards for hydroelectric facilities, nor would it be reasonable to do so given the *de minimis* nature of their cooling water usage. EPA attempts to elide this requirement by relying on its BPJ regulation as a "catch all" to extend the application of § 316(b) to hydroelectric facilities. But this provision was developed within the context of facilities for which EPA has established technology-based standards, and EPA has never provided notice of or taken comment on an intent to apply the BPJ provision outside of those categories, such as hydroelectric facilities.

Second, establishing § 316(b) requirements for CWISs at hydroelectric facilities would conflict with and duplicate other federal and state processes and requirements already in place, including requirements established through FERC's licensing process. In particular, technology requirements that go beyond the location, design, construction, and capacity of CWISs exceed EPA's limited CWA § 316(b) authority and would intrude on the authority of other federal and

state agencies. Entrainment and impingement impacts of the dam itself, if any, are appropriately addressed through FERC licensing and other existing regulatory processes, not NPDES permits. Finally, EPA has never formally considered any of the legal, technical, or economic issues involved in applying § 316(b) to hydroelectric facilities. For all of these reasons, EPA should clarify in the final permits that it has not made a determination that CWA § 316(b) applies to hydroelectric facilities and that it will not make such a determination without full and procedurally appropriate consideration of the issue via a separate rulemaking. Unless and until that occurs, EPA and state permit writers should not apply § 316(b) to hydroelectric facilities in NPDES permits.

Even if EPA, after full and procedurally appropriate consideration of the issue, concludes that CWA § 316(b) applies to hydroelectric facilities (which UWAG believes that it should not), UWAG agrees with EPA's determination that the 2014 Rule does not apply to hydropower facilities. The determination that the 2014 Rule does not apply is consistent with the Agency's explicit statements during the existing facilities rulemaking that withdrawals from hydroelectric facilities were not meant to be addressed in its 2014 Rule. EPA never collected any information on the design, location, construction, and capacity of pipes or other features used to divert water for use in cooling equipment in hydroelectric facilities, or on the environmental impacts of those features. That omission is crucial because hydroelectric facilities differ substantially from the largely land-based steam electric plants and industrial facilities for which EPA has developed its § 316(b) rules, and, as detailed in UWAG's comments on the 2018 proposals, the requirements of the 2014 Rule are not appropriate for hydropower facilities. It would be arbitrary and capricious and contrary to the Administrative Procedure Act (APA) requirements for fair notice and opportunity for comment for EPA to apply the 2014 Rule to hydroelectric facilities.

Although UWAG does not agree that § 316(b) applies to hydroelectric facilities, UWAG provides herein recommendations for improving the proposed BPJ framework if EPA insists on applying § 316(b) to hydroelectric facilities on a BPJ basis. EPA appropriately states that it "generally expects that a [sic] hydroelectric facilities' existing controls are technologies that can be determined to satisfy ... BTA" for § 316(b). UWAG agrees that, in general, hydroelectric facilities, which divert a very small percentage of the water moving through the facility for cooling purpose and are typically subject to extensive environmental review through FERC licensing and other federal requirements, do not require additional technologies to minimize adverse effects at their cooling water intakes.

UWAG recommends several changes to the proposed BPJ approach, however, including clarification on how certain aspects of the proposed four-factor analysis would be applied at other hydropower facilities across the country and elimination of facility-wide BPJ conditions that exceed EPA's § 316(b) authority. UWAG agrees that permit writers should find BTA is satisfied if any one of the four factors outlined is met. Because it is not clear from the draft Fact Sheets how the four factors would be applied to other hydroelectric facilities across the country, UWAG provides some recommendations for clarification of Factors 1 (efficiency of power generation), 2 (cooling water withdrawn relative to waterbody volume or flow), and 3 (location of the intake structure). UWAG agrees that, for many hydroelectric facilities, any one of these factors could demonstrate that BTA is met.

UWAG is concerned, however, that EPA's application of Factor 4 (existing technologies at the facility) for the Proposed Permits relies on the technologies or attributes for the facility as a whole, not the intake. The incorporation of such facility-wide operations and attributes as enforceable NPDES permit conditions could create duplicative and, in some cases, conflicting

requirements that would go well beyond EPA's authority under CWA § 316(b), which is limited to the "location, design, construction, and capacity" of the CWIS.

Because the Proposed Permits, if finalized, would be EPA's first statement on the applicability of § 316(b) and could be seen by state permit writers and other EPA regions as a model framework for applying § 316(b) to hydroelectric facilities on a BPJ basis, they have important implications beyond the Lower Columbia and Lower Snake Rivers. The proposed BPJ analysis provides little direction or clarity as to how it would be applied for other hydroelectric facilities around the country and could be misinterpreted to allow permit writers discretion to impose NPDES requirements for the facility as a whole. UWAG urges EPA to clarify that it will not determine that § 316(b) applies to hydroelectric facilities without a full and procedurally appropriate consideration of the issue via a separate rulemaking and that EPA and state permit writers will not apply § 316(b) to hydroelectric facilities unless and until such a process is completed. If EPA insists on proceeding to apply § 316(b) to hydroelectric facilities, UWAG recommends that the Region make key clarifications and changes to its proposed BPJ four-factor framework and related permit conditions.

Finally, UWAG urges EPA to clarify that some of the non-316(b) proposed permit conditions are specific to the eight facilities at issue and would not necessarily be appropriate at other hydroelectric facilities around the country.

Table of Contents

The Utility Water Act Group Comments on
EPA Region 10's Proposed NPDES Permits for Federal Hydroelectric Facilities in the Lower Columbia and Lower Snake Rivers

I. Introduction

Since Congress enacted the CWA, EPA has never contemplated applying § 316(b)[3] requirements to hydroelectric facilities. This is due to a number of factors. First, Congress did not intend to apply § 316(b) to hydroelectric facilities, which are designed to use substantially less cooling water than steam electric power plants. Second, the text of § 316(b) indicates that it does not apply to facilities for which EPA has not established technology-based standards under §§ 301 and 306, such as hydropower facilities. Third, any § 316(b) requirements imposed by EPA would conflict with and duplicate environmental conditions already imposed by other federal and state agencies, including FERC. Finally, EPA has never collected relevant information or provided notice or an opportunity to comment on the feasibility or costs associated with applying § 316(b) to hydropower facilities.

In 2018, Regions 1 and 10 indicated for the first time an intent to deviate from EPA's traditional position by proposing to apply CWA § 316 requirements and the 2014 Rule[4] to hydroelectric facilities discharging pollutants to waters of the United States in Idaho, Massachusetts, and New Hampshire.[5] As detailed in comments submitted by UWAG in

[3] 33 U.S.C. § 1326(b).

[4] Final Regulations to Establish Requirements for CWISs at Existing Facilities and Amend Requirements at Phase I Facilities, 79 Fed. Reg. 48,300 (Aug. 15, 2014) ("2014 Rule" or "Existing Facilities Rule").

[5] Proposed Issuance of NPDES General Permit for Hydroelectric Facilities Within the State of Idaho (IDG360000), 83 Fed. Reg. 18,555 (Apr. 27, 2018); Notice of Availability of Draft NPDES General Permits for Hydroelectric Generating Facilities in Massachusetts (MAG360000) and New Hampshire (NHG360000), 83 Fed. Reg. 42,118 (Aug. 20, 2018).

response to those proposals,[6] interpreting CWA § 316(b) to apply to hydroelectric generation facilities is unsupported and contrary to law. To date, those general permits have not become final. EPA Region 10 now proposes to issue permits for eight federal hydropower facilities in the Lower Columbia and Lower Snake Rivers. While those Proposed Permits would not apply the 2014 Rule, they include a proposed framework for evaluating whether hydropower facilities satisfy BTA under CWA § 316(b) through a case-by-case BPJ determination.[7] Region 10 proposes to determine that, based on existing technologies, the facilities at issue satisfy BTA and to adopt as enforceable NPDES conditions specific facility-wide operations requirements and technologies that the facilities are implementing pursuant to previous biological opinions and fish protection plans.

The Proposed Permits could be viewed by state permit writers and other EPA regions as a model framework for applying § 316(b) to hydroelectric facilities on a BPJ basis and, therefore, have important implications beyond the Lower Columbia and Lower Snake Rivers. UWAG supports EPA's determination that the 2014 Rule does not apply to hydroelectric facilities but disagrees with EPA's proposed application of CWA § 316(b) requirements. The application of § 316(b) to hydroelectric facilities would be a significant expansion of EPA's regulatory jurisdiction, yet EPA has never conducted a formal rulemaking to consider the technical feasibility or cost of applying such requirements to hydroelectric facilities. Furthermore, such

[6] Comments of the National Hydropower Association and the Utility Water Act Group on the EPA Region 10 Proposed Issuance of NPDES General Permit for Hydroelectric Facilities Within the State of Idaho (IDG360000), 83 Fed. Reg. 18,555 (Apr. 27, 2018), (July 11, 2018); Comments of the Utility Water Act Group on the EPA Region 1 Proposed NPDES General Permit for Hydroelectric Generating Facilities in Massachusetts (MAG360000) and New Hampshire (NHG360000), 83 Fed. Reg. 42,118 (Aug. 20, 2018), (Oct. 19, 2018).

[7] Draft NPDES Permit Fact Sheet, Lower Columbia River Hydroelectric Facilities, at 52 (Mar. 18, 2020) ("Draft Lower Columbia River Facilities Fact Sheet"); Draft NPDES Permit Fact Sheet, Lower Snake River Hydroelectric Facilities, at 51-52 (Mar. 18, 2020) ("Draft Lower Snake River Facilities Fact Sheet") (together, draft Fact Sheets).

requirements would conflict with and duplicate other federal and state requirements specifically designed to address the environmental impacts of existing hydropower facilities. As detailed in these comments, UWAG also has concerns about EPA's proposed BPJ framework and the resulting permit conditions and requests clarification on how the BPJ framework would be applied in other circumstances.

The Utility Water Act Group (UWAG) is a voluntary, non-profit, unincorporated group of 138 individual energy companies and three national trade associations of energy companies: the Edison Electric Institute, the National Rural Electric Cooperative Association, and the American Public Power Association. UWAG members operate hydroelectric facilities, power plants, and other facilities that generate, transmit, and distribute electricity to residential, commercial, industrial, and institutional customers. One of UWAG's purposes is to participate on behalf of its members in EPA regulatory actions under the CWA and in litigation arising from those regulatory actions. UWAG's membership includes owners and operators of hydroelectric facilities that would be affected by the adoption and issuance of the Proposed Permits to the extent they are relied on by other EPA regions and state permit writers.

II. Use of Cooling Water at Hydroelectric Facilities

Within the United States, there are approximately 2,200 hydroelectric facilities, of which private entities own and operate around 1,300 facilities, and public entities own and operate approximately 900 facilities.[8] Hydroelectric facilities vary significantly in terms of size, environmental controls, and overall design and configuration, especially when it comes to the pipes and structures that divert water for purposes of cooling. Relative to the total water transported through the facility, a very small amount of water is diverted for cooling. In general,

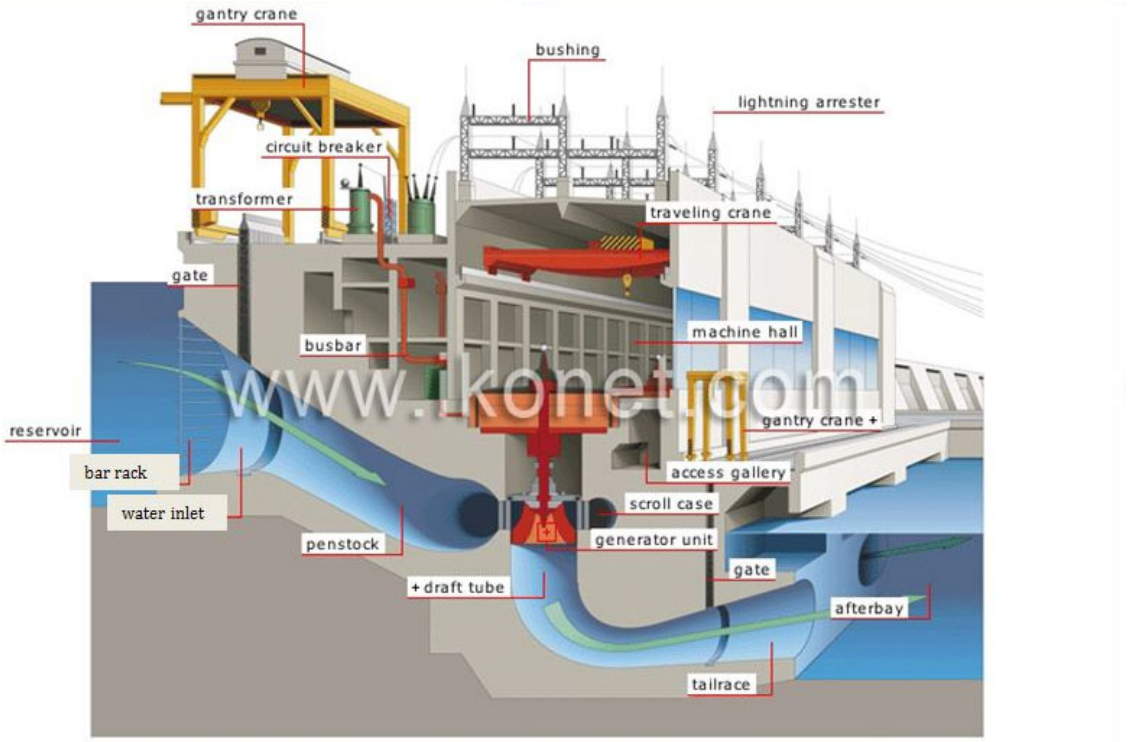
[8] *See* U.S. Department of Energy, 2014 Hydropower Market Report, Figure 5, at 13 (Apr. 2015).

as discussed in more detail in Section V.D, cooling water accounts for less than 1 percent of the total water transported through the facility and, in some cases, less than 0.1 percent.

Generally, water diverted for cooling is primarily sourced from four locations at a hydroelectric facility: (1) a water inlet port located on the face of the dam; (2) the penstock – a closed conduit or pipe that conveys water from the reservoir to the turbine; (3) the turbine scroll case – a spiral-shaped steel structure that distributes water flow through the wicket gates located just prior to the turbine; or (4) the draft tube – the pipe that conveys water from the turbine to the tailrace. There likely are exceptions to these locations, because each facility has a unique, location-specific design to take maximum advantage of the hydraulics of that location. An individual facility may use one design exclusively or may use a combination of designs. After use for cooling, diverted water is transferred downstream primarily via these methods: (1) directed back to the penstock and re-used to generate electricity, (2) directed back to the scroll case (low head dams mainly) and re-used to generate electricity, (3) directed to the tailrace via the draft tube, or (4) direct transfer to the tailrace.

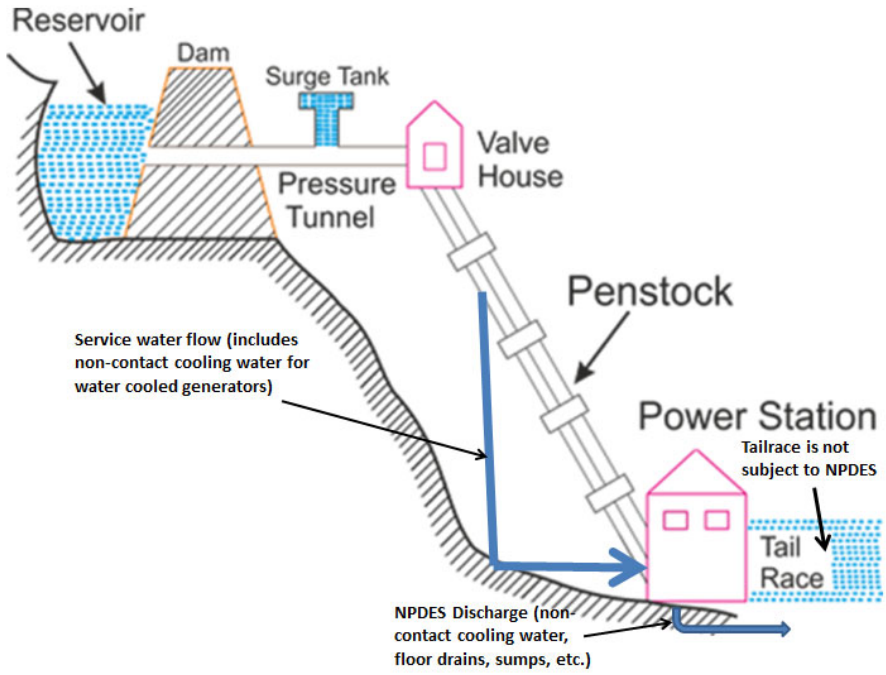
The features of a typical hydroelectric facility are depicted in Figure 1, and an example of a facility diverting cooling water from the penstock is depicted in Figure 2.

Figure 1[9]



[9] The Visual Dictionary, Cross Section of a Hydroelectric Plant, www.ikonet.com.

Figure 2



Based on the facility diagrams in the draft Fact Sheets, it appears the eight federal facilities subject to Region 10's proposed permits generally divert water for cooling from either the turbine scroll case or from a direct intake from the river.[10] After being used for cooling, it appears, these facilities transfer the diverted water to the tailrace or discharge it directly to the river. The draft Fact Sheets also provide a helpful figure of the hydroelectric generating facility process.[11]

[10] *See* Draft Lower Columbia River Facilities Fact Sheet at 63-71; Draft Lower Snake River Facilities Fact Sheet at 63-68.

[11] *See* Draft Lower Columbia River Facilities Fact Sheet, Figure 2, at 16; Draft Lower Snake River Facilities Fact Sheet, Figure 2 at 15

Accordingly, hydroelectric generating facilities do not have CWISs in the conventional industrial context on which the current § 316(b) regulations were developed.[12] Given the wide range of configurations for hydroelectric facilities and different processes for diverting water for cooling, the technologies considered by EPA for steam electric power plants and manufacturing plants are not necessarily appropriate or practical for hydroelectric facilities.

III. EPA's Proposal to Apply CWA § 316(b) to Hydroelectric Facilities Is Neither Compelled by Nor Consistent with the CWA.

The draft Fact Sheets for Region 10's Proposed Permits assert, for the first time, that "all cooling water intake structures at hydroelectric facilities are subject to [BPJ] Section 316(b) cooling water intake structure conditions."[13] The draft Fact Sheets provide no analysis of or support for applying § 316(b) requirements to hydroelectric facilities. The Fact Sheets, instead, point to 40 C.F.R. § 125.90(b) as rationale for their approach. Under that provision, "cooling water intake structures" not subject to requirements under EPA's § 316(b) regulations (Phase I Rule for New Facilities, Phase III Rule for New Offshore Oil and Gas Extraction Facilities, or the 2014 Rule for Existing Facilities) "must meet requirements under section 316(b) of the CWA established by the Director on a case-by-case, best professional judgment (BPJ) basis." In promulgating this BPJ provision, however, EPA never considered its application to sources outside the categories for which it had developed national standards, such as hydroelectric facilities. The Proposed Permits and Fact Sheets fail to provide any legal support or analysis for applying § 316(b) to hydroelectric facilities, even on a BPJ basis.

[12] Because hydroelectric facilities do not have conventional CWIS and their configurations vary, these comments refer to the mechanisms that divert cooling water as intakes, pipes, or diversion structures.

[13] Draft Lower Columbia River Facilities Fact Sheet at 52; Draft Lower Snake River Facilities Fact Sheet at 51-52.

For the reasons set forth below, EPA should clarify that it has not made a determination that CWA § 316(b) applies to all hydroelectric facilities nationwide because such a determination is inconsistent with statutory language and regulatory framework for hydroelectric facilities and would require full and procedurally appropriate consideration of the issue via a separate rulemaking.

A. Hydroelectric Generation Facilities Are Not Subject to CWA § 316(b).

Applying § 316(b), even on a BPJ case-by-case basis, to hydroelectric facilities is neither compelled by nor consistent with the CWA. Section 316(b) provides:

> Any standard established pursuant to section 1311 of this title or section 1316 of this title and applicable to a point source shall require that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact.

33 U.S.C. § 1326(b).

The limited legislative history for § 316(b) indicates that Congress did not intend for § 316(b) to apply to hydroelectric facilities. From November 1971 to October 1972, Congress considered various bills that eventually would become the CWA. On September 28, 1972, the conference committee substantially amended § 316, modifying that provision to insert for the first time a provision addressing CWISs, and submitted its report for approval by both the House and Senate.[14] During the House of Representatives' consideration of the conference report, Rep. Donald Clausen (R-CA1) made the following statement in support:

> Section 316 was originally included in the House-passed water pollution control bill because of the belief that the arguments which justified a basic technological approach to water quality control did not apply in the same manner to the discharges of heat…. [S]team-electric generating plants are the major source of the discharges of heat…. Section 316(b) requires the location, design, construction, and capacity of cooling water intake structures *of steam-electric*

[14] *See* H.R. Rep. No. 92-1465, at 68, 137 (Sept. 28, 1972).

> *generating plants* to reflect the best technology available for minimizing any adverse environmental impact.[15]

Rep. Clausen's statement indicates that Congress intended § 316(b) to apply to steam electric generating plants, not hydroelectric generating facilities that harness the power of falling or fast-moving water to drive turbines to produce electricity.[16] In contrast, steam electric power plants heat water into steam that drives the electric-generating turbines, typically requiring considerably more cooling water to safely operate the facility. It is these facilities that were Congress' focus when it promulgated CWA § 316(b).

In promulgating CWA § 316(b), Congress would have understood, as discussed in more detail below, that other statutes and regulations governed consideration of environmental impacts from water diversion structures. For example, Congress would have been well aware that the Federal Power Act (FPA) licensing process for hydroelectric facilities requires evaluation of environmental impacts and conditions to protect and mitigate impacts to fish and wildlife habitat. Congress gave no indication that it intended such facilities to be subject to additional requirements under CWA § 316(b), nor would such requirements have made sense in light of the other mechanisms in place under the FPA. There is no evidence that Congress intended CWA § 316(b) to apply to hydroelectric facilities, and, indeed, the limited legislative history for that provision indicates that Congress intended § 316(b) to address adverse environmental impacts associated with industrial facilities, such as steam electric generating facilities, for which the

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[15] House Consideration of the Report of the Conference Committee (Oct. 4, 1972), *reprinted in* 1 A LEGISLATIVE HISTORY OF THE WATER POLLUTION CONTROL ACT AMENDMENTS OF 1972, at 262–64 (1973) (statement of Rep. Clausen) (emphasis added).

[16] UWAG does not dispute that § 316(b) applies to other industrial facilities that use cooling water beyond steam electric plants (*e.g.*, iron and steel facilities). *See*, *e.g.*, *Appalachian Power Co. v. Train*, 566 F.2d 451, 457-58 (4th Cir. 1977). But previous court decisions have not considered whether hydroelectric facilities are subject to § 316(b), nor have they examined the particular question of whether facilities for which EPA has not established standards under §§ 301 and 306 are subject to § 316(b). *See* Section III.B below for more discussion on this issue.

statute requires EPA to establish nationally applicable effluent limitations guidelines and new source performance standards.[17] There is no basis in the statute to support an interpretation that § 316(b) applies to hydroelectric facilities.

B. CWA § 316(b) Does Not Apply to Categories of Point Sources for Which EPA Has Not Established National Standards Under §§ 301 and 306.

By its terms, § 316(b) applies only where EPA establishes standards under §§ 301 and 306 for point sources. Unlike the other facilities to which EPA has applied § 316(b), EPA has not established such technology-based limitations and standards for hydroelectric facilities, nor would it be reasonable to do so given the *de minimis* nature of their cooling water usage and discharges. EPA attempts to circumvent this requirement by relying on its BPJ regulation, 40 C.F.R. § 125.90(b), as a "catch-all" to extend the application of § 316(b) to hydroelectric facilities. But this provision was developed within the context of facilities for which EPA has established technology-based standards, and EPA has never provided notice of or taken comment on an intent to apply the BPJ provision outside of those categories.

As a prerequisite to applying § 316(b), EPA must set uniform, national technology-based standards. EPA's rules reflect this understanding by embedding the § 316(b) requirement, 40 C.F.R. § 401.14, within 40 C.F.R. Part 400, the section of the Code that addresses effluent guidelines and standards promulgated pursuant to §§ 301 and 306. Of course, EPA can identify additional categories of discharges suitable for development of national standards,[18] but nothing

[17] Congress was aware that NPDES permits for existing steam electric generating facilities generally are not subject to National Environmental Policy Act (NEPA) review. *See* 33 U.S.C. § 1371(c)(1). For such facilities, where EPA has established national standards under §§ 301 and 306, CWA § 316(b) functions as a tool to evaluate and minimize adverse environmental impacts of CWISs. Congress also would have been aware that NEPA does apply to other federal actions, such as FERC licensing and federal dams. Because many hydroelectric facilities are subject to NEPA (as discussed in more detail in Section III.D.3 below), an adequate regulatory framework already exists to assess and mitigate for such impacts, and a separate mechanism under CWA § 316(b) is unnecessary.

[18] *See* 33 U.S.C. § 1314(m)(1)(B).

in the statute authorizes the application of § 316(b) to industries for which no such standards exist or suitability determination has been made. It, therefore, would be unlawful for EPA to interpret the BPJ provision as a loophole to this statutory requirement – especially when EPA never indicated in its promulgation of the BPJ regulation its intent to apply the provision to any facilities not subject to national guidelines. When EPA adopted its § 316(b) Rules, it never considered the data collection requirements for, the availability and costs of technology for, and the impacts or benefits of applying § 316(b) to sources outside those categories for which it had developed national standards.[19]

In 1976, EPA issued its first § 316(b) rule, 41 Fed. Reg. 17,387 (Apr. 26, 1976), but the Fourth Circuit remanded it to EPA on procedural grounds. *Appalachian Power Co.*, 566 F.2d 451. EPA's remaining rule and guidance instructed NPDES permit writers to make case-by-case determinations regarding BTA for CWISs at point sources subject to EPA standards established pursuant to §§ 301 or 306. *See* 40 C.F.R. § 401.14 ("The location, design, construction and capacity of cooling water intake structures of any point source for which a standard is established pursuant to section 301 or 306 of the Act shall reflect the best technology available for minimizing adverse environmental impact, in accordance with the provisions of part 402 of this chapter."); 33 U.S.C. § 1342(a)(1)(B).[20] By its terms, § 401.14 applies only to those point sources for which technology-based standards are established under §§ 301 and 306.

[19] *See*, *e.g.*, Information Collection Request, Detailed Industry Questionnaires: Phase II Cooling Water Intake Structures & Watershed Case Study Short Questionnaire at 4-5 (Aug. 18, 1999); Phase I, Notice of Data Availability, 66 Fed. Reg. 28,853, 28,856 (May 25, 2001); Phase II, Proposed Rule, Information Collection Request (ICR) for CWIS at Existing Facilities (Final Rule), OMB Control No. 2040-0257, EPA ICR No. 2060.07, at 7 (Aug. 2014).

[20] *See also* EPA, Draft Guidance for Evaluating the Adverse Impact of Cooling Water Intake Structures on the Aquatic Environment: Section 316(b) Public Law 92–500, at 4 (1977) ("The environment-intake interactions in question are highly site specific and the decision as to best technology available for intake design, location, construction, and capacity must be made on a case-by-case basis.").

EPA's Phase I rule established national technology-based performance requirements for new facilities that withdraw greater than 2 million gallons per day (MGD) of surface water and use at least 25 percent of the water they withdraw for cooling purposes. 66 Fed. Reg. 65,256 (Dec. 18, 2001). In the preamble to the final rule, EPA simply states that, if a new facility does not meet these threshold requirements, the permit authority will implement § 316(b) on a case-by-case basis, using BPJ. *Id.* at 65,256; 40 C.F.R. § 125.80(c). The Phase II rule set requirements for existing steam electric plants with flows greater than 50 MGD. 69 Fed. Reg. 41,576 (July 9, 2004). In the preamble to the Phase II rule, EPA stated that facilities that do not meet the Phase II rule's applicability thresholds are subject to permit conditions set by the permit director on a case-by-case basis, using BPJ. *Id.* at 41,578. Although certain aspects of the Phase II rule were invalidated by the U.S. Court of Appeals for the Second Circuit and later withdrawn, the BPJ provision, 40 C.F.R. § 125.90(b), remained in place. 72 Fed. Reg. 37,107 (July 9, 2007). Neither the Phase I nor Phase II rules indicated that EPA intended to apply the rules (or, in particular, the BPJ provisions) to any facilities not subject to the guidelines and standards promulgated pursuant to §§ 301 and 306.

The 2014 Rule adopted substantially the same BPJ provision to address existing facilities that do not meet the threshold requirements. 79 Fed. Reg. at 48,300; 40 C.F.R. § 125.90(b). While the 2014 Rule mentions that the list of industries covered by the Rule "is not intended to be exhaustive," 79 Fed. Reg. at 48,300, this language does not indicate that EPA intended to apply the Rule to any facilities not subject to the guidelines and standards promulgated pursuant to §§ 301 and 306.

In these § 316(b) rulemakings, EPA did not collect information from categories of facilities for which EPA had not established national technology-based standards.[21] EPA provided no legal rationale for such a position, did not solicit comment on this approach, and did not make any attempt to discuss the technological availability or cost for such facilities. Thus, it was reasonable to conclude that EPA's longstanding position that § 316(b) only applies to those industries for which categorical standards have been developed or are determined to be necessary and appropriate remained in effect. Indeed, even though EPA's BPJ provisions have been in effect for almost two decades,[22] neither federal nor state NPDES permitting authorities have read those BPJ provisions to apply to hydroelectric facilities.

Without an adequate legal, technical, economic, and policy rationale developed by rulemaking, the EPA regions and other permitting authorities may not rely on the BPJ provision to circumvent § 316(b)'s statutory requirements.

C. EPA Has Never Provided Notice or an Opportunity to Comment on the Legal, Technical, and Cost Issues Associated With Applying § 316(b) Requirements to Hydroelectric Facilities.

The APA's notice-and-comment mandate is "designed (1) to ensure that agency regulations are tested via exposure to diverse public comment, (2) to ensure fairness to affected parties, and (3) to give affected parties an opportunity to develop evidence in the record to support their objections to the rule and thereby enhance the quality of judicial review." *Int'l Union, United Mine Workers of America v. Mine Safety and Health Admin.*, 407 F.3d 1250, 1259 (D.C. Cir. 2005). These procedures "ensure that the broadest base of information would be provided to the agency by those most interested and perhaps best informed on the subject."

[21] *See* note 19, *supra*.

[22] 40 C.F.R. § 125.80(c) (New Facilities BPJ provision, effective since 2001) and 40 C.F.R. § 125.90(b) (Existing Facilities BPJ provision, effective since 2004).

Phillips Petroleum Co. v. Johnson, 22 F.3d 616, 620 (5th Cir. 1994). EPA has implemented § 316(b) by issuing regulations that establish BTA standards for intake structures that become binding for a particular facility only after the standards are incorporated into an NPDES permit for discharges from a regulated facility. Except for the 2018 proposed NPDES general permits for hydroelectric facilities in Idaho, Massachusetts, and New Hampshire, at no point during EPA's long history of implementing § 316(b) have EPA's regulatory actions addressed the applicability of CWA § 316(b) to hydroelectric facilities or suggested that CWA § 316(b) would apply to hydroelectric facilities on a case-by-case BPJ basis.

1. EPA's § 316(b) Rules Did Not Evaluate Hydroelectric Facilities.

As noted above, EPA issued its first § 316(b) rule in 1976,[23] but the Fourth Circuit remanded it to EPA on procedural grounds.[24] EPA's remaining rule and guidance instructed NPDES permit writers to make case-by-case determinations regarding BTA for CWIS at point sources subject to EPA standards established pursuant to §§ 301 or 306. *See* 40 C.F.R. § 401.14.[25] By contrast, even where hydroelectric facilities require NPDES permits for discharges, the limits imposed are largely water quality-based.[26] Although § 401.14 has been in effect since 1976, generally, neither federal nor state NPDES permitting authorities read

[23] 41 Fed. Reg. 17,387 (Apr. 26, 1976).

[24] *Appalachian Power Co. v. Train*, 566 F.2d 451 (4th Cir. 1977).

[25] See also EPA, Draft Guidance for Evaluating the Adverse Impact of Cooling Water Intake Structures on the Aquatic Environment: Section 316(b) Public Law 92–500, at 4 (1977) ("The environment-intake interactions in question are highly site specific and the decision as to best technology available for intake design, location, construction, and capacity must be made on a case-by-case basis.").

[26] *See*, *e.g.*, Arkansas NPDES Permit No. AR0048755, Statement of Basis at 6-7 (Apr. 13, 2017); Arkansas NPDES Permit No. AR0048763, Statement of Basis at 7 (Sept. 4, 2013); West Virginia NPDES Permit No. WV0078859, App. A § I.12 (Aug. 9, 2016); South Carolina Department of Health and Environmental Control, NPDES General Permit for Hydroelectric Generating Facilities, Permit No. SCG360000 (May 15, 2015).

§ 401.14 as applicable to hydroelectric facilities that are issued NPDES permits for minor equipment-related discharges.[27]

As described in Section III.B above, since 1976, EPA has issued a series of regulations implementing § 316(b) for new facilities, as well as existing steam electric plants and manufacturing facilities. The Phase I rule established national technology-based performance requirements for new facilities that withdraw greater than 2 MGD of surface water and use at least 25 percent of the water they withdraw for cooling purposes. 66 Fed. Reg. at 65,256. The Phase II rule set requirements for existing steam electric plants with flows greater than 50 MGD, 69 Fed. Reg. 41,576 (July 9, 2004), but certain aspects of the rule were invalidated by the U.S. Court of Appeals for the Second Circuit and later withdrawn.[28] The rules for lower flow steam electric plants and all manufacturing facilities (known as the Phase III rules)[29] also were withdrawn. In place of the Phase II and III rules, in 2014, EPA issued a single rule for existing facilities – the 2014 Existing Facilities Rule.[30] During the development of the Phase I, II, and III rules, EPA never suggested that any of those rules would apply to hydroelectric facilities, whether or not the facilities use cooling water or need an NPDES permit.

[27] *See*, *e.g.*, EPA Region 1 General Permits Under the NPDES for Hydroelectric Generating Facilities in the States of Massachusetts and New Hampshire and Tribal Lands in Massachusetts, Permit Nos. MAG360000, NHG360000 (Nov. 10, 2009); ADEM General Permit Rationale, Hydroelectric Generating Facilities ALG360000 (Aug. 18, 2015) (ADEM General Permit Rationale); South Carolina Department of Health and Environmental Control, NPDES General Permit for Hydroelectric Generating Facilities, Permit No. SCG360000 (May 15, 2015); North Carolina Department of Environment and Natural Resources, NPDES General Permit No. NCG50000 (Oct. 1, 2015). We are aware of one exception, discussed in note 36, infra.

[28] *Riverkeeper, Inc. v. EPA*, 475 F.3d 83 (2d Cir. 2007); 72 Fed. Reg. 37,107 (July 9, 2007).

[29] 71 Fed. Reg. 35,006 (June 16, 2006).

[30] 79 Fed. Reg. 48,300.

Indeed, in the preamble to the proposed rule for existing facilities, EPA explicitly stated that withdrawals from hydroelectric facilities were not meant to be addressed by the Existing Facilities Rule:

> Given the diversity of industrial processes across the U.S., there are many other industrial uses of water not intended to be addressed by today's proposed rule…. Warming water at liquefied natural gas terminals, and *hydro-electric plant withdrawals for electricity generation are not cooling water uses and are not addressed by today's proposal* ….

76 Fed. Reg. 22,174, 22,190 (Apr. 20, 2011) (emphasis added).

As explained above, until the general permits proposed by Regions 1 and 10 in 2018, there had never been any indication from EPA or Congress that CWA § 316(b) could apply to hydroelectric facilities. Hydroelectric facilities had no notice that those facilities could be subject to new NPDES requirements, nor were they provided an opportunity to comment on the many ways in which technologies that EPA evaluated for steam electric power and manufacturing plants cannot be considered BTA for hydroelectric facilities.

2. EPA Never Collected the Necessary Information to Apply § 316(b) to Hydroelectric Facilities.

None of EPA's ICRs were directed at hydroelectric facilities, nor did EPA use any other method to collect or consider information on cooling water diversion or use by hydroelectric facilities. Variations in the locations, design, and configurations of cooling water "intakes" unique to hydroelectric facilities were never contemplated in EPA's previous facility surveys or technology evaluations for promulgating § 316(b) regulations for new or existing power generating facilities. EPA did not consider whether hydroelectric facilities could feasibly monitor or otherwise assess entrainment or impingement mortality associated with cooling water diversion within the facility or whether those facilities could distinguish such mortality from mortality occurring by virtue of the passage of water through the turbines. Nor did EPA consider

the availability, performance, or cost of technologies for reducing entrainment or impingement mortality that might be caused by hydroelectric facilities' cooling water "intakes," which often consist of one or more relatively small pipes diverting water from within the facility.

The development of EPA's 2014 § 316(b) Rule was no different; EPA's ICR solicited no information from any hydroelectric facilities.[31] As discussed below, EPA stated in the preamble to the proposed rule that water withdrawals for generation of electricity by hydroelectric facilities were not subject to the rule. *See* 76 Fed. Reg. at 22,190. As a result of this express and unambiguous statement, EPA received no comments regarding the potential applicability of CWA § 316(b) to hydroelectric facilities or addressing the potential impacts of applying the proposed technology requirements to hydroelectric facilities. Indeed, in the final 2014 Existing Facilities Rule, EPA estimated that a total of 1,065 facilities would be subject to the Rule. 79 Fed. Reg. at 48,305. None of those facilities were hydroelectric power generators.[32] Thus, EPA never collected the necessary information to evaluate impacts of the Rule on hydroelectric facilities, even though some hydropower generators divert more than 2 MGD and use 25 percent or more of the diverted water for cooling purposes.[33]

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[31] *See* Information Collection Request (ICR) for CWISs at Existing Facilities (Final Rule), OMB Control No. 2040-0257, EPA ICR No. 2060.07 (Aug. 2014).

[32] Technical Development Document for the Final Section 316(b) Phase II Existing Facilities Rule, EPA-HQ-OW-2008-0667-4138 (May 19, 2014) (2014 TDD) at 4-24 ("From the universe of facilities with a steam electric prime mover and based on data collected from EPA's industry technical questionnaires and the compliance requirements for the final rule, EPA has identified 544 facilities to which the proposed rule is expected to apply.").

[33] EPA generally does not consider the water that simply enters the turbines and passes through the dam to be "diverted" or "withdrawn" from waters of the United States. See, *e.g.*, *Nat'l Wildlife Fed'n v. Gorsuch*, 693 F. 2d 156 (D.C. Cir. 1982) (holding that dams do not meet the "addition of a pollutant" element and thus are exempt from the NPDES permit requirement); Draft Fact Sheet and Supplemental Information, NPDES General Permit for Discharges from Hydroelectric Generating Facilities to Certain Waters of the Commonwealth of Massachusetts and the State of New Hampshire, at 24 ("the percentage of water used for cooling is calculated as a percentage of the total volume withdrawn for use in the facility, not as a percentage of the volume of water that passes through the penstock or turbines."). Thus, EPA has indicated that the total quantity of water from which it would measure the percentage of water

3. EPA Has Not Considered Whether the Diversion Structures at Hydroelectric Facilities Should Be Treated as Cooling Water Intake Structures.

CWA § 316(b) provides that standards developed pursuant to §§ 301 and 306 shall require that "the location, design, construction, and capacity of *cooling water intake structures* reflect best technology available for minimizing adverse environmental impact." 33 U.S.C. § 3126(b) (emphasis added). The statute does not provide a definition of "cooling water intake structure," and EPA has not considered whether the diversion structures at hydroelectric facilities should be treated as "cooling water intake structures" subject to § 316(b). It is arbitrary and capricious for EPA to apply the definition of "cooling water intake structure" to hydroelectric facilities, as it proposes to do in these Proposed Permits, without preparing a record evaluating the legal, technical, environmental, and policy issues involved in treating the diversion structures at hydroelectric facilities as CWIS, and without providing notice and an opportunity for comment on that record.

EPA developed its regulatory definition of "cooling water intake structure" by looking only at steam electric plants and manufacturing facilities. EPA promulgated its definition of "cooling water intake structure" in its 2001 Phase I rule, which established national technology-based performance requirements for new facilities that withdraw greater than 2 MGD of surface water and use at least 25 percent of the water they withdraw for cooling purposes. 66 Fed. Reg. at 65,256. EPA's Phase I rule stated that facilities that would meet those criteria would "generally ... fall into two major groups: new steam electric generating facilities and new manufacturing facilities." *Id.* The Phase I rule defined CWIS as "the total physical structure and any associated constructed waterways used to withdraw cooling water from waters of the United

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diverted for cooling purposes would correspond to the water withdrawn by the intake pipe or diversion structure within the penstock, scroll case, or other feature within the facility.

States. The [CWIS] extends from the point at which water is first withdrawn from waters of the United States up to, and including the intake pumps." 40 C.F.R. § 125.92(f). The definition has not changed since then. In promulgating this CWIS definition, during the Phase I rulemaking, EPA never mentioned new hydroelectric facilities nor gave any consideration to whether that definition is apposite for hydroelectric facilities. *See* Section III.C.1, *supra*.

The failure to consider the CWIS definition in the context of hydroelectric facilities is critical because hydroelectric facilities are fundamentally different from the facilities EPA has previously considered in its § 316(b) rules. Like land-based steam electric plants and manufacturing facilities or offshore oil and gas platforms, hydroelectric facilities use water that must be transferred into the facility through some means. And, like land-based steam electric plants and manufacturing facilities or offshore oil and gas platforms, an organism's point of entry into a hydroelectric facility is the point at which the intake of water to the facility first occurs. The key difference is that the vast majority of water entering a hydroelectric facility is transferred through the facility without being withdrawn from a water of the U.S. and is therefore not subject to NPDES permitting.[34] As a result, the point of entry for organisms entering a hydropower facility is the point at which the intake of water to the facility first occurs, not the point at which water is taken in or diverted for cooling purposes.[35]

Indeed, the question of whether hydroelectric facilities have CWIS arises only because the vast amount of the water is not withdrawn from waters of the U.S. Treating a pipe within a

[34] *See* footnote 33, *supra*.

[35] For a hydroelectric facility, the transit of organisms entering the facility is determined by the physical attributes and forces within the facility as a whole. Once organisms enter the facility, they cannot escape or avoid the water transfer. The velocity of the water moving through facility generally dominates the velocity of the pipes used for diversion of a small amount of water for cooling purposes. The dominant velocity will control the path any organisms take and, as a result, the risk of organisms being entrained or impinged by the small diversion is relatively low.

hydroelectric facility that diverts a small amount of water for cooling purposes as a "cooling water intake structure" simply does not make sense, given that the potential for adverse environmental effects and the availability, cost, and other implications of any controls are completely controlled by the attributes of the facility as a whole, not the CWIS.

Without ever considering the appropriateness of its approach, EPA is now proposing to apply the definition of CWIS that it developed by looking only at steam electric plants and manufacturing facilities that mostly withdraw water from waters of the U.S. to hydroelectric facilities, which mostly do not. It has done so without preparing a record evaluating the legal, technical, environmental, and policy issues involved, and without providing notice and an opportunity for comment on that record.

In sum, in light of Congressional intent not to apply CWA § 316(b) to hydroelectric facilities, EPA's failure to indicate in any of its previous § 316(b) rulemakings that its § 316(b) BPJ provision would apply to facilities for which EPA has not established national standards under §§ 301 and 306, EPA's explicit statements that hydroelectric facilities would not be covered by the 2014 Rule, and EPA's failure to consider whether hydroelectric facilities really have CWIS, private and public entities that own or operate hydroelectric facilities did not provide comments to address the potential impacts of applying § 316(b) requirements to hydropower facilities. Thus, any attempt now by EPA to apply such requirements, which has been done only on rare occasions through post hoc determinations for particular facilities[36] and

[36] In one of the few instances where EPA has asserted that § 316(b) and the 2014 Rule apply to hydroelectric facilities, it is clear that EPA's determination was made behind the scenes, well after the 2014 Rule was promulgated, and without a notice-and-comment rulemaking that evaluated the potential implications of such a determination. The 2016 NPDES Permit Fact Sheet for the Smith Mountain Hydroelectric Plant in Virginia stated, "Significant discussion was held during this reissuance regarding the applicability of CWA section 316(b). [The applicant's] position is that hydropower stations are not subject to section 316(b). However, after consultation with EPA, a determination was made that the facility is subject to CWA 316(b) and the [Existing Facilities] Rule. The determination was that § 316(b)

now in the Proposed Permits, is contrary to the APA's requirements for fair notice and opportunity for comment.

D. Establishing § 316(b) Requirements for CWISs at Hydroelectric Facilities Would Conflict With and Duplicate Other Federal and State Requirements Already in Place.

The statutory scheme Congress established under the FPA, and other federal statutes, demonstrates Congress' intent that FERC, through the FERC hydropower licensing process, would generally address all issues related to the use of water by non-federal hydroelectric facilities, including any water quality issues raised by a state CWA § 401 certification. Federal hydroelectric facilities are authorized through a variety of mechanisms, including specific legislation, and are often subject to NEPA and ESA reviews and requirements. For example, the Proposed Permits apply to congressionally-authorized federal facilities operated by the U.S. Army Corps of Engineers, which do not require a FERC license, and have been subject to stringent fish protection measures required by previous biological opinions.

The § 316(b) framework in the Proposed Permits could have important implications beyond the federal facilities to be permitted, including hydroelectric projects that require FERC authorization – the most common facilities for UWAG members.[37] If the BPJ framework and

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'applies' to hydropower facilities if waters of the U.S. are withdrawn and used for cooling purposes." VPDES Permit Program Fact Sheet, Permit No. VA0088765, at ¶ 30 (June 13, 2016). Other states that have considered the issue have determined that § 316(b) does not apply to hydroelectric facilities, *see, e.g.,* ADEM General Permit Rationale (ADEM agrees that the § 316(b) rule is *"*not applicable" to hydroelectric facilities), or have continued to issue NPDES permits for hydroelectric facilities without § 316(b) requirements, *see, e.g.,* South Carolina Department of Health and Environmental Control, NPDES General Permit for Hydroelectric Generating Facilities, Permit No. SCG360000 (May 15, 2015); North Carolina Department of Environment and Natural Resources, NPDES General Permit No. NCG50000 (Oct. 1, 2015).

[37] Certain non-federal hydroelectric facilities, such as small projects (5 MW or less) or projects conducted on an existing conduit (*e.g.*, irrigation canal), do not require FERC licensing because those projects would result in minor environmental effects (*e.g.*, projects that involve little change to water flow and use and are unlikely to affect threatened and endangered species), but they are still subject to a similar

conditions from the Proposed Permits were applied more broadly, it likely would duplicate (and may conflict with) other federal and state requirements already in place. Both FERC-regulated and non-FERC-regulated facilities must also comply with NEPA provisions regarding impacts to aquatic resources associated with operational changes, as well as formally consult with the U.S. Fish and Wildlife Service (FWS) and/or the National Marine Fisheries Service (NMFS) (together, "the Services") where federally threatened and endangered species may be impacted.

1. Federal Power Act

The comprehensive development standard of FPA § 10(a)(1) requires that licensed hydroelectric projects be best adapted to a comprehensive plan for improving or developing a waterway, including, among other uses, for the adequate protection, mitigation, and enhancement of fish and wildlife (including related spawning grounds and habitat). 16 U.S.C. § 803(a)(1). Section 10(a)(1) grants FERC the authority to require the modification of any project and of the plans and specifications of the project before approval. Thus, to the extent that participating resource agencies, which are actively involved in the licensing process, identify during licensing significant issues relating to impacts from diversion and use of cooling water at hydroelectric facilities, those impacts would be considered by FERC in ensuring that the project will be best adapted to a comprehensive plan.

Section 10(j) of the FPA provides for the full participation of federal and state fish and wildlife agencies in recommending conditions for the protection, mitigation, and enhancement of fish and wildlife resources affected by the development, operation, and management of the hydroelectric project.[38] Such conditions are based on recommendations received pursuant to the

process and subject to mandatory terms and conditions set by federal and state fish and wildlife agencies and by the Commission. 18 C.F.R. § 4.30.

[38] 16 U.S.C. § 803(j)(1).

Fish and Wildlife Coordination Act from the Services and state fish and wildlife agencies. As part of the application for a hydroelectric license (or relicense), applicants must submit to FERC an environmental report describing the fish and wildlife that occur within the vicinity of the project and downstream areas affected by the project and must identify any federally listed threatened or endangered species.[39] The same report also must describe any measures recommended by consulting fish and wildlife agencies for mitigating such impacts and protecting fish and wildlife.[40]

2. Endangered Species Act

Additional requirements to evaluate potential impacts to aquatic species exist under the Endangered Species Act (ESA). Pursuant to ESA § 7, federal agencies that operate or authorize hydroelectric facilities have an obligation to ensure that their actions are not likely to jeopardize the continued existence of any federally listed endangered or threatened species.[41] Non-FERC-regulated, federally operated facilities, such as those at issue in the Proposed Permits, will engage in consultation with the Services directly to satisfy this requirement.

The federal hydroelectric facilities in the Lower Columbia and the Lower Snake Rivers have engaged in numerous consultations with NMFS going back nearly three decades.[42] In May 2008, NMFS issued a biological opinion that established a Reasonable and Prudent Alternative (RPA), consisting of 73 actions that were to be implemented over a 10-year period to avoid

[39] 18 C.F.R. §§ 4.51(f), 4.41(f).

[40] *Id*.

[41] 16 U.S.C. § 1536.

[42] Indeed, the facilities have a long and complicated history of ESA consultation and related litigation. NMFS issued its first biological opinion for the facilities in 1992. Subsequent legal challenges required NMFS to reissue biological opinions for the federal facilities in 1993, 1994, 1995, 2000, 2004, 2005, and 2008. *See Nat'l Wildlife Fed'n v. Nat'l Marine Fisheries Serv.*, 184 F. Supp. 3d 861, 869-72 (D. Or. 2016).

jeopardizing ESA-listed anadromous fish species.[43] These actions included optimizing turbine operation and providing spill to improve fish passage.

Additionally, the RPA directed the Corps to prepare, in coordination with NMFS, an annual Fish Passage Plan (FPP) outlining specific fish protection measures in further detail for each of the federal hydroelectric facilities. As described in the 2019 FPP, the hydroelectric facilities must operate facilities within ±1 percent of peak turbine efficiency and operate turbines in priority order to maximize fish passage. In addition, the 2019 FPP also outlines additional fish protection mechanisms located at specific facilities. These measures include submersible traveling screens to deter fish from entering main unit turbines and vertical bar screens (VBS) at intakes and fish passage structures.

For facilities that require FERC authorization, FERC directs the project sponsor to engage in informal consultation with NMFS and/or FWS to determine whether the project will impact a federally listed species.[44] Unless NMFS or FWS concludes that the proposed hydroelectric facility is not likely to adversely affect federally listed species, the project sponsor

[43] NMFS, Endangered Species Act Section 7(a)(2) Consultation Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation: Consultation on Remand for Operation of the Federal Columbia River Power System, 11 Bureau of Reclamation Projects in the Columbia Basin and ESA Section 10(a)(1)(A) Permit for Juvenile Fish Transportation Program (2008). The 2008 biological opinion was supplemented in 2010 with new information and an Adaptive Management Integration Plan and again in 2014 with additional data and analyses. Although the U.S. District Court for the District of Oregon ultimately overturned the 2008 and 2014 supplemental biological opinions, *Nat'l Wildlife Fed'n*, 184 F. Supp. 3d at 876, the Corps, along with the Bonneville Power Administration and Bureau of Reclamation, agreed to continue to implement the measures set out in the RPA originally established in the 2008 biological opinion. *See* NMFS, Endangered Species Act Section 7(a)(2) Consultation Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for the Continued Operation and Maintenance of the Columbia River System (2019).

[44] 18 C.F.R. § 380.13.

must prepare a Biological Assessment containing the results of detailed surveys, potential impacts, and proposed mitigation to eliminate or minimize such impacts.[45]

Where the consulting agency concludes that the project will result in the "incidental take"[46] of listed species, NMFS or FWS will prepare a Biological Opinion that may include reasonable and prudent measures to avoid jeopardy and must include a statement specifying the impact (*i.e.*, the amount or extent of incidental take) and reasonable and prudent measures considered necessary or appropriate to minimize the take of listed species.[47] Through this process, FERC (or the federal agency operating the facility) will determine, in consultation with the Services, which conservation and mitigation measures should be implemented to minimize impacts. In other words, the ESA process frequently results in the imposition of measures to protect listed species that might be impacted by operations of hydroelectric facilities, including the diversion of cooling water.

3. National Environmental Policy Act

NEPA review requires the federal agency operating the facility or FERC to develop a Finding of No Significant Impact (FONSI), an Environmental Assessment (EA), or an Environmental Impact Statement (EIS) for a project. Entrainment, impingement, and other impacts on fish and wildlife are analyzed in these environmental documents. For example, in the EA for a hydroelectric project in Arkansas, FERC concluded that, "[b]ased upon [Arkansas Game and Fish Commission] observations, current levels of turbine entrainment and mortality of

[45] *See* 18 C.F.R. § 380.13(b).

[46] "Incidental take" refers to "takings that result from, but are not the purpose of, carrying out an otherwise lawful activity…." 50 C.F.R. § 402.02.

[47] *See* 16 U.S.C. § 1536(b)(4); *see also* 50 C.F.R. § 402.14(i).

fish [are] not considered to be a significant issue[s] at these projects."[48] As another example, for the Smith Mountain Hydroelectric Plant, a pumped storage facility in Virginia, an entrainment study qualitatively evaluated entrainment for selected species based on reservoir and turbine intake characteristics, water velocity and swim speed data, and life history characteristics.[49] FERC concluded in the EIS for the project that the "loss of individual fish from entrainment and mortality is not expected to result in any substantial effects to the fishery at the Project."[50]

The analyses above address entrainment associated with all water passing through the projects, including the enormous amounts of water that go through the turbines for electricity generation. While these studies generally do not focus on entrainment specific to the small pipes and other structures – often within or off of the penstocks – that various hydroelectric facilities use to divert water for service water and cooling purposes, withdrawals and entrainment impacts from these cooling water diversions would be exceptionally smaller. In addition, FERC frequently addresses the issue of fish impingement and entrainment by requiring licensees to screen their intakes to prevent or minimize fish from entering the penstock, which can eliminate or reduce the possibility of impingement or entrainment during the diversion of water from the penstock for cooling purposes.

Furthermore, CWA § 401 provides to states broad authority to impose conditions as part of state-issued water quality certifications in the context of FERC's licensing and relicensing of projects or federal authorizations for non-FERC-regulated facilities (*e.g.*, NPDES permits). FERC may not issue a license, and non-FERC regulated facilities generally cannot operate,

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[48] FERC, Environmental Assessment for Hydropower License, Carpenter-Remmell Hydroelectric Project, Project No. 271-062, at 66 (Dec. 2001).

[49] *See* FERC, Final Environmental Impact Statement for Hydropower License, Smith Mountain Pumped Storage Project, Project No. 2210, FERC/FEIS-0230F, at 119-126 (Aug. 2009).

[50] *Id.* at 126.

unless the state has either issued or waived the water quality certification. States have used this authority to impose conditions related to fisheries, aesthetics, recreation, and more.[51] Such conditions are considered "mandatory," meaning the federal agency has no discretion but to incorporate them into the facility's authorization, be it a FERC license or NPDES permit.

In accordance with the authorities described above, fish and wildlife agencies often recommend protection, mitigation, and enhancement measures to offset any known impacts of hydroelectric facilities for aquatic species. In some cases, FERC license conditions may go further than § 316(b) requirements would to minimize adverse environmental impacts associated with hydroelectric operations because they can include habitat restoration that, although not allowed as BTA for steam electric and manufacturing facilities covered by the Existing Facilities Rule, serves to provide habitat for individual species, life stages (such as spawning and rearing of young), or entire communities of aquatic organisms affected by hydroelectric operations.

Thus, the FERC licensing process already provides for measures to minimize adverse environmental impacts of hydroelectric operations and, at times, may be more stringent than § 316(b) requirements. Any imposition of § 316(b) requirements, through application of a case-by-case BPJ determination, would generally be duplicative of existing federal and state requirements already in place. As the Alabama Department of Environmental Management (ADEM) has recognized, "[t]he purpose of 316(b) of the [CWA] is to reduce mortality to fish and other aquatic organisms impacted by cooling water intake structures," but, for hydroelectric facilities, "the impacts to aquatic organisms are already addressed" and "have been extensively

[51] *See*, *e.g.*, *S.D. Warren Co. v. Maine Bd. of Envtl. Prot.*, 547 U.S. 370 (2006) (holding FERC-licensed dams must comply with state certification that required operator to maintain stream flow and allow passage for certain fish and eels).

studied under the [NEPA] and [FERC] regulatory frameworks and subsequently granted 401 certifications…."[52]

As the United States Supreme Court has recognized, absent clear direction from Congress, courts will view (and agencies should view) with skepticism statutory interpretations that extraordinarily expand regulatory jurisdiction. *Util. Air Regulatory Grp. v. EPA*, 134 S. Ct. 2,427, 2,444 (2014). Interpreting CWA § 316(b) to apply to hydroelectric generation facilities would be a significant expansion of EPA's regulatory jurisdiction and would duplicate other federal and state requirements specifically designed to address these environmental impacts.

IV. The Proposed Permits Would Appropriately Determine That the 2014 Existing Facilities Rule Does Not Apply to Hydroelectric Facilities.

Even if EPA concludes that CWA § 316(b) applies to hydropower facilities, and UWAG believes that it should not, the requirements of the 2014 Rule are not appropriate for such facilities, which are fundamentally different from the steam electric power and manufacturing plants considered in that rulemaking. UWAG supports EPA's determination in this proposal that the 2014 Rule does not apply to hydroelectric facilities. The draft Fact Sheets state that, even though the facilities meet the regulatory thresholds for the 2014 Rule, EPA has determined, "in light of the text, structure, history and purpose of the regulation, in the case of hydroelectric facilities, the rule is ambiguous as to application of the substantive requirements and that the EPA never intended that the rule's substantive provisions would apply to them."[53] UWAG agrees. EPA did not intend to apply the 2014 Rule to hydropower facilities; thus, it would be inappropriate and unlawful for EPA to do so.

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[52] *See* ADEM General Permit Rationale at 3.

[53] Draft Lower Columbia River Facilities Fact Sheet at 52; Draft Lower Snake River Facilities Fact Sheet at 51.

A. EPA Did Not Consider Technologies for Hydroelectric Facilities or Evaluate the Potential Impacts of Applying the 2014 Rule's BTA Standards to Hydroelectric Facilities.

As discussed in Section III.C above, EPA's final 2014 Rule and preamble provide no discussion of the applicability of § 316(b) or the Rule to hydroelectric facilities. In fact, the administrative record for the 2014 Rule is replete with indications that EPA did not consider impacts to hydroelectric facilities when evaluating potential technologies or the associated costs and benefits. For example, in the Economic Analysis for the final 2014 Rule, EPA stated that "[t]he final rule is only relevant for power generators that use substantial amounts of cooling water, and … [o]nly prime movers with a *steam-electric generating cycle* use large enough amounts of cooling water to be subject to the final rule."[54] The analysis goes on to describe steam electric facilities as those generating units that are fueled by "coal, gas, oil, waste, nuclear, geothermal, and solar steam."[55] EPA does not include hydroelectric facilities in its analysis of the economic impact of the Rule on electric generation units, nor does EPA analyze the economic impact of the rule on hydroelectric facilities, in particular.[56] Likewise, in the Technical Development Document for the 2014 Rule, EPA includes the following exhibit that provides the estimated number of facilities that would be subject to the 2014 Rule by fuel type and prime mover category, but the table does not include hydroelectric facilities:

[54] Economic Analysis for the Final Section 316(b) Existing Facilities Rule, EPA-HQ-OW-2008-0667-3433, at 2A-4 (May 2014) (emphasis added) ("2014 Economic Analysis").

[55] *Id.*; *see also* TDD at 4-23 ("Only prime movers with a steam-electric generating cycle use large enough amounts of cooling water to fall under the scope of the proposed rule.") (emphasis omitted).

[56] In fact, the only discussion of hydroelectric facilities in EPA's Economic Analysis is a general description of hydroelectric facilities' contribution to electricity generation. *See* 2014 Economic Analysis at 2A-3.

Exhibit 4-26. 316(b) electric power facilities by plant type and prime mover

Plant type[a]	Prime mover	Number of 316(b) electric generators[b,c]
Coal steam	Steam turbine	342
Gas	Steam turbine	73
Nuclear	Steam turbine	56
Oil	Steam turbine	29
Other steam	Steam turbine	25
Total steam	Steam turbine	525
Combined cycle	Combined cycle	33
Total		559

[a] Facilities are listed as steam electric if they have at least one steam electric generating unit.
[b] Facility counts are weighted estimates generated using the original 316(b) survey weights.
[c] Individual values do not sum to reported total due to rounding as the result the application of statistical weights.
Sources: U.S. EPA, 2000; U.S. DOE, 2007 (GenY07); U.S. EPA Analysis, 2010

2014 TDD Exhibit 4-26.

Similarly, EPA's benefit analyses did not consider hydroelectric facilities. To evaluate the benefits of the 2014 Rule's requirements, EPA extrapolated data from 98 model facilities based on information EPA received in the 2000 ICR.[57] In its 2000 ICR, however, EPA did not request information from any hydroelectric facilities. EPA ultimately narrowed its research activities to focus on traditional utilities, nonutility power producers, and four other industrial categories that utilize large quantities cooling water. "Traditional utilities and nonutility power producers that use cooling water were further limited to those plants that generate electricity by means of steam as the thermodynamic medium (steam electric) because they are associated with large cooling water needs."[58] Therefore, hydroelectric facilities, which do not generate electricity through the use of steam, were excluded from EPA's original data request, which was later used to support EPA's analysis of the Existing Facility Rule's benefits.

[57] *See* Benefits Analysis for the Final Section 316(b) Existing Facilities Rule, EPA 821-R-14-005, EPA-HQ-OW-2008-0667-4135, at 3-5 (May 2014).

[58] Information Collection Request, Detailed Industry Questionnaires: Phase II Cooling Water Intake Structures & Watershed Case Study Short Questionnaire at 5 (Aug. 18, 1999).

As noted above, EPA estimated that the 2014 Rule would cover 1,065 facilities (including 544 electric generators, 509 manufacturers in six primary manufacturing industries, and 12 manufacturers in other industries). 79 Fed. Reg. at 48,305. EPA made no attempt to determine whether any of the nation's 2,100 hydroelectric facilities would meet the Rule's thresholds. Instead, EPA concluded that "[u]nits with water turbines, or 'hydroelectric units,'… do not use a steam loop and do not use cooling water…."[59] This is perhaps why there is no reference to hydroelectric facilities in EPA's 467-page response to comments document.[60]

EPA cannot impose § 316(b) requirements on hydroelectric facilities without engaging in proper notice-and-comment rulemaking that evaluates the availability and feasibility of potential technologies *for hydroelectric facilities*. Accordingly, it is appropriate for EPA to determine, as it has in the draft Fact Sheets, that the 2014 Rule does not apply to hydroelectric facilities.

B. The Requirements of the 2014 Rule Are Not Appropriate for Hydroelectric Facilities, Which Are Fundamentally Different From Facilities Covered by the Rule.

The requirements that EPA established in the 2014 Rule are not appropriate for hydroelectric facilities, which are fundamentally different from the steam electric power and manufacturing plants EPA considered in that rulemaking.

As discussed above, EPA did not consider hydroelectric facilities in establishing BTA in its 2014 Rule. EPA explained in the preamble to the 2014 Rule that, to establish BTA for the facilities covered by the Rule, EPA considered: "the availability and feasibility of various technologies," "costs associated with these technologies," the technologies' economic impacts, "effectiveness of these technologies in reducing impingement mortality and entrainment," and

[59] 2014 TDD at 4-22.

[60] Response to Comments Document for the Final 316(b) Existing Facilities Rule, EPA-HQ-OW-2008-0667-3679 (May 19, 2014).

additional factors, such as "location, age, size, and type of facility." 79 Fed. Reg. at 48,328. For this analysis, EPA made a number of assumptions based on data and information from steam electric power plants and manufacturing plants that do not take into account technology costs or feasibility for hydroelectric facilities.[61]

The assumptions that EPA made for the facilities it considered in its 2014 Rule do not necessarily apply for hydroelectric facilities. There are numerous different configurations for hydroelectric facilities and, in particular, their pipes and structures that divert cooling water. Nearly every facility has unique, location-specific design attributes to take maximum advantage of the hydraulics of that unique physical location.

For example, some hydroelectric facilities have a hole bored through the penstock in which a perforated flange is used to attach a small pipe used to gravity feed service and cooling water equipment. Some hydroelectric facilities have pipes that come off the scroll case. Others have separate pipes that come off the face of the dam. For these three configurations, water that is gravity- or pressure-induced feeds through the pipe to cool and service the equipment. Other facilities have separate intake pump houses upstream of the powerhouse. For those facilities, there is a distinct and separate intake used for service water and cooling purposes. Pumped storage facilities pump water from lower reservoirs to higher elevation reservoirs during times of

[61] For example, in evaluating impingement data and performance standards, EPA relied on 26 impingement mortality data sets at 17 facilities, none of which included hydroelectric facilities. 79 Fed. Reg. at 48,323; 2014 TDD Exhibit 11-3, at 11-6. As another example, in the final rule, EPA adjusted its assumptions for costs of modified traveling screens with fish returns in response to feedback that its proposal had underestimated those costs. 79 Fed. Reg. at 48,324. The adjustments EPA made in its evaluation of technology costs included: to correct its misplaced assumption that modified traveling screens were available at most facilities, EPA assigned higher cost technologies (*e.g.*, larger intakes, wedgewire screens with through-screen design velocities of 0.5 fps) for intakes that use passive screens; EPA increased capital costs for the fish return component and included additional costs for those with particularly difficult circumstances, such as very long intake canals and submerged offshore intakes. *Id.*; 2014 TDD at 8-2 to 8-6 (explaining EPA's model facility approach and modifications to the cost tool). EPA did not consider application of the technology to hydropower facilities.

low electric demand and then release water from the upper reservoir to drive turbines during periods of high electric demand. In one pumped storage facility, cooling water is drawn from the cavity between the inner and outer walls of the power house, while service water is drawn from a single intake at the tailrace of the plant.

Given the wide range of configurations for hydroelectric facilities and different processes for diverting water for cooling, the technologies that EPA found to be the best available technologies and sampling requirements for steam electric power plants and manufacturing plants are not necessarily appropriate or practical for hydroelectric facilities. Indeed, at many hydroelectric facilities, conducting impingement or entrainment sampling at the pipe or structure taking in cooling water would be very difficult, or even unsafe, due to turbulence. Sampling equipment may not be able to withstand water flows and forces and could break away, potentially damaging the facility.

In addition, many of the impingement technology options that are established as BTA in the 2014 Rule would not be feasible at most hydroelectric facilities. For example, one of the impingement options is to use a maximum 0.5 feet per second through-screen design velocity, 40 C.F.R. § 125.94(c)(2). For many hydroelectric facilities, however, the only way to retrofit an intake pipe within the penstock to meet that through-screen design velocity would be to increase the size of the intake opening, which in some cases would require dam reconstruction and could actually increase entrainment because of the increase in the volume of water passing through the intake. Similarly, at least three of the impingement options, §§ 125.94(c)(5)-(7), require an impingement technology performance optimization study, which would be very difficult, if not impossible, for many hydroelectric facilities that would not be able to conduct impingement sampling at the intake.

Indeed, the 2014 Rule's requirements would not be necessary in most cases because the rates of impingement and entrainment would be so low that additional controls would not be warranted. Some hydroelectric facilities have in place screens to prevent debris of a certain size from entering the penstock (and therefore the cooling water pipe), and, at many facilities, the water passes through a strainer before being used for cooling purposes. Some of these strainers are backwashed to a plant sump. In UWAG members' experience, fish are rarely (if ever) observed in strainer baskets or in backwash to the plant sump. Moreover, for many hydroelectric facilities, due to the high velocity and volume of water passing through the penstock and by the entrance to the intake, the rates of impingement would be so low that additional impingement controls would be useless. The same is true for entrainment at many of these facilities. For hydroelectric facilities, the *de minimis* exception for impingement established in the 2014 Rule, 40 C.F.R. § 125.94(c)(11), would be applicable more often than not. And the fact that there is not a *de minimis* exception for entrainment in the 2014 Rule would create issues for many hydroelectric facilities that would have no way of further minimizing the already very minor rates of entrainment.

EPA clearly did not consider hydroelectric facilities when it was establishing the requirements under the 2014 Rule. As explained above, such requirements are not appropriate or feasible for hydroelectric facilities, which are fundamentally different from facilities covered by the 2014 Rule. For all of these reasons, UWAG supports EPA's conclusion in the draft Fact Sheets that the 2014 Rule does not apply to hydroelectric facilities.

V. If Applying § 316(b) to Hydroelectric Facilities, EPA Should Make Several Key Changes and Clarifications to the Proposed BPJ Framework and Conditions.

As discussed above, because CWA § 316(b) does not apply to hydropower facilities, UWAG believes that the BPJ framework provided by EPA is unnecessary, inappropriate, and

unlawful. However, in the event that EPA insists on applying § 316(b) to hydroelectric facilities on a BPJ basis, UWAG provides the following comments and recommendations for improving the proposed framework and conditions.

EPA proposes to establish case-by-case BPJ § 316(b) conditions for the hydroelectric facilities in the Lower Columbia and Lower Snake Rivers, and it sets forth, for the first time, a four-factor framework for applying BPJ to hydroelectric facilities. These factors, addressed in more detail below, include: (1) efficiency of power generation, (2) cooling water withdrawn relative to waterbody volume or flow, (3) location of the intake structure, and (4) technologies at the facility.[62] To the extent that EPA anticipates this framework will be applied more broadly to hydroelectric facilities other than the eight federal facilities subject to the Proposed Permits, EPA must clarify how the proposed factors in its BPJ analysis would apply to other facilities and make other changes to the framework, as outlined below.

A. In General, Hydroelectric Facilities Already Satisfy BTA.

According to the draft Fact Sheets, EPA "generally expects that a hydroelectric facilities' [sic] existing controls are technologies that can be determined to satisfy the requirements of BTA to minimize entrainment and impingement mortality."[63] As discussed in more detail in Section III.D above, many hydroelectric facilities are already subject to extensive environmental reviews through other federal agency processes, such as the FERC licensing process. The Fact Sheets note that EPA is "aware that many hydroelectric facilities are required to implement measures that reduce the impacts of the dam, including the impacts to passage of aquatic life through the

[62] Draft Lower Columbia River Facilities Fact Sheet at 53-54; Draft Lower Snake River Facilities Fact Sheet at 52-53.

[63] Draft Lower Columbia River Facilities Fact Sheet at 53; Draft Lower Snake River Facilities Fact Sheet at 52.

dam, as conditions of a FERC license or a Biological Opinion."[64] As the Region acknowledges, "these are not technologies employed at the CWIS," but EPA states that these measures "minimize the passage of aquatic life past the intake structures inside the penstocks of the dam and thus minimize the entrainment and impingement mortality."[65]

Although EPA does not have the authority under § 316(b) to require technologies or operations for the facility as a whole that are not specific to the cooling water intake, UWAG agrees that it is generally true that the rates of impingement and entrainment related to the diversion of cooling water would be so low that additional controls would not be warranted. The diversion of relatively small amounts of water that otherwise would flow through a hydroelectric facility is unlikely to cause any meaningful incremental environmental impacts.

B. Facilities that Meet One or More of the Four Factors Satisfy BTA.

The draft Fact Sheets state that EPA may use "[a]ny combination of one or more" of the four factors to determine whether BTA requirements have been satisfied.[66] Indeed, for the facilities at issue, EPA relies solely on Factor 4 to determine that the facilities satisfy BTA.[67] UWAG agrees that facilities that meet one or more of the factors identified satisfy BTA. EPA should clarify that permit writers should not view the four factors as a checklist – they need not evaluate other factors where, as with the Proposed Permits, one of the factors is satisfied. Under that approach, where permit applicants believe they satisfy multiple factors, they would have flexibility to provide information to the permit writer to demonstrate one or more factors are

[64] Draft Lower Columbia River Facilities Fact Sheet at 53; Draft Lower Snake River Facilities Fact Sheet at 52.

[65] Draft Lower Columbia River Facilities Fact Sheet at 53; Draft Lower Snake River Facilities Fact Sheet at 52.

[66] Draft Lower Columbia River Facilities Fact Sheet at 53; Draft Lower Snake River Facilities Fact Sheet at 52.

[67] Draft Lower Columbia River Facilities Fact Sheet at 54-55; Draft Lower Snake River Facilities Fact Sheet at 53-54.

satisfied. As discussed in more detail below, however, if permit applicants have demonstrated that one of the four factors applies, permit writers should not require applicants to generate or provide additional information related to the other factors. EPA states that any one or more of the factors "may be used to address entrainment and impingement."[68] As discussed in more detail below, UWAG agrees that each of the four factors addresses both impingement and entrainment.

C. Factor 1 - Efficiency of Power Generation

Under this factor, EPA proposes to consider how efficiently a facility produces electricity by comparing megawatts produced to the quantity of cooling water used. UWAG agrees with EPA's assessment that hydroelectric facilities are generally more efficient than a once-through steam electric facility as they generate less waste heat. Based on this factor alone, permit writers should be able to conclude that § 316(b) BTA requirements have been satisfied. Because EPA does not address this factor for the eight facilities at issue, it is not entirely clear what kind of analysis or support permit writers would need to use to rely on this factor. UWAG recommends that EPA clarify that, to satisfy this factor, applicants would simply need to provide a calculation of the ratio of MGD of cooling water used by the hydroelectric facility to megawatts (MW) produced. In general, those ratios, when compared to steam electric plants, demonstrate that the hydroelectric facilities' flows are much more efficient than once-through steam electric facilities and compare favorably to rates achieved by comparable existing steam electric plants with closed-cycle recirculating cooling systems.

[68] Draft Lower Columbia River Facilities Fact Sheet at 53; Draft Lower Snake River Facilities Fact Sheet at 52.

D. Factor 2 - Cooling Water Withdrawn Relative to Waterbody Volume or Flow

For the second factor, EPA proposes to consider "proportional flow." As EPA notes, in previous § 316(b) rulemakings, EPA has stated that using a low percentage of the waterbody flow or volume for cooling is an indication that a facility has minimized impacts.[69] For example, in EPA's Phase I New Facility Rule, EPA found that new facilities on rivers or streams could show that they meet proportional flow requirements by demonstrating that the total design intake flow of CWIS at the facility withdraws no greater than 5 percent of the source waterbody mean annual flow. *See* 66 Fed. Reg. at 65,276-77.

UWAG supports EPA's use of the 2014 Rule's "proportional flow requirements"[70] and agrees that the cooling water withdrawn at hydro facilities is a small fraction of the water passed through the dam for generating purposes. UWAG agrees with EPA's expectation that such withdrawals will almost always be below 5 percent.[71] As noted in the Introduction to these comments, cooling water generally accounts for less than 1 percent of the total water transported

[69] *See, e.g.,* 79 Fed. Reg. at 48,331 (The 2014 Rule preamble states, "EPA assumes that entrainment and impingement (and associated mortality) at a site are proportional to source water intake volume. Thus, if a facility reduces its intake flow, it similarly reduces the amount of organisms subject to impingement and entrainment."); 69 Fed. Reg. at 41,599 (The Phase II rule preamble states, "EPA is not requiring entrainment reductions in freshwater rivers or streams where facilities withdraw 5 percent or less of the source water annual mean flow because such facilities generally have a low propensity for causing significant entrainment impacts due to the low proportion of intake flow in combination with the characteristics of the waterbody."); 66 Fed. Reg. at 65,277 (The Phase I rule establishes a 5 percent proportional flow requirement as one option that would "provide protection for aquatic life.").

[70] The proportional flow inquiry discussed in EPA's proposed four-factor BPJ framework is different from the 2014 Rule's applicability requirement that 25 percent or more of the water the facility withdraws from a water of the United States be used for cooling purposes. Whereas the proportional flow inquiry for Factor 2 evaluates the percentage of all water passing through the facility that is diverted for cooling purposes, and the 2014 Rule's 25 percent threshold (if applied to hydroelectric facilities) would be based on the percentage of water extracted or diverted for use in the facility that is used for cooling purposes. As discussed in note 33, supra, water passing through the penstock or turbines is not considered by EPA to be "withdrawn" from waters of the United States until it is diverted for use in the facility.

[71] Draft Lower Columbia River Facilities Fact Sheet at 53; Draft Lower Snake River Facilities Fact Sheet at 53.

through hydroelectric facilities, and in some cases less than 0.1 percent. For example, the Claytor Lake hydroelectric facility in Virginia uses 0.05 percent of the water transported through the facility for cooling purposes, and the Niagara facility on the Roanoke River in Virginia uses 0.006 percent. As such, permit writers generally should be able to conclude that § 316(b) BTA requirements have been satisfied based on this factor alone.

Although the draft Fact Sheets state that any of the four factors can be used to address entrainment and impingement, they later state that proportional flow requirements would only address entrainment because "most passive floating organisms that are addressed by this factor are not of impingeable size."[72] UWAG disagrees with the latter statement. EPA should clarify that all four factors, including the proportional flow factor, may be used to address impingement and entrainment. EPA's previous § 316(b) rulemakings focused on how proportional flow requirements address entrainment.[73] They did not focus on how such requirements could address impingement because EPA determined that impingement rates for CWISs at steam electric and manufacturing facilities are "related to intake flow, intake velocity, and the swimming ability of the fish subject to impingement."[74] For hydroelectric facilities, however, the swimming ability of the fish is not likely to affect impingement rates. Due to the high velocity and volume of water passing through the penstock and by the entrance to the intake, once organisms have entered the facility, mobility generally becomes irrelevant. Therefore, EPA should clarify that the proportional flow factor may be used to address both impingement and entrainment.

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[72] Draft Lower Columbia River Facilities Fact Sheet at 53; Draft Lower Snake River Facilities Fact Sheet at 53.

[73] Because entrainable organisms are generally smaller and considered to be uniformly distributed throughout the source water, EPA assumes that there is a 1:1 ratio between flow reductions and entrainment. 79 Fed. Reg. at 48,331, n. 48.

[74] *See id*.

E. Factor 3 - Location of the Intake Structure

EPA notes in the draft Fact Sheets that many hydroelectric facilities' intakes are located within the dam, either in the penstocks or the scroll case of the turbine.[75] UWAG agrees that the location of the intake structure (*e.g.*, in the draft tube, penstock, or scroll case) can demonstrate that the facility meets BTA for § 316(b). As EPA notes, where the CWIS is within the dam, there is a lower density of organisms as compared to an intake in the waterbody, thereby minimizing impacts from the operation of the turbine. In addition, the cost to modify a structure located within the facility would be very expensive. Thus, where the intake is located within the dam, permit writers should be able to conclude that § 316(b) BTA requirements have been satisfied based on this factor alone.

As the draft Fact Sheets note, this factor would not be applicable for hydroelectric facilities with intakes on the face of the dam or in the waterbody. Those facilities can meet BTA by demonstrating that they meet one or more of the other factors or that the location of the intake is situated such that the presence of fish susceptible to entrainment or impingement is low. For example, the intake may be located away from suitable spawning or nursery habitat, or the fish species likely present would not be susceptible to entrainment or impingement due to their size, swim speed, natural behaviors, etc. Clarification by EPA on addressing this factor for intakes not situated in the draft tube, penstock, or scroll case would be helpful.

F. Factor 4 - Technologies at the Facility and Related BPJ Conditions

EPA identifies two "technologies" in its discussion of Factor 4: (1) design of the facility, such as a screen over the intake pipe; and (2) intake velocities (*i.e.*, the fact that water is moving through the system to drive turbines may result in a higher sweeping velocity past the opening of

[75] Draft Lower Columbia River Facilities Fact Sheet at 54; Draft Lower Snake River Facilities Fact Sheet at 53.

the intake, minimizing the time in which an organism can be impinged).[76] UWAG is concerned that Factor 4 is very broad and open-ended and, without more specific direction from EPA, could be used by permit writers to ask for data or information (*e.g.*, velocities past the intake screen) that in many cases is not necessary to collect[77] and/or that UWAG members do not have the ability to collect, as discussed in more detail below.

1. EPA's § 316(b) Authority Is Limited to the Location, Design, Construction, and Capacity of Cooling Water Intake Structures.

In addition, UWAG is concerned that the technologies on which EPA relies in its application of Factor 4 are technologies or attributes for the facility as a whole, not specific to the intake. EPA states that it relied on Factor 4 to determine that the facilities at issue meet BTA.[78] In Table 18 in the draft Fact Sheets, EPA sets forth the technologies and attributes that constitute BTA for each facility and states that, "[w]hile these are not technologies employed at the CWIS, these measures minimize the passage of aquatic life past the intake structures inside the penstocks of the dam and thus minimize the entrainment and impingement mortality."[79] The existing technologies relied on by EPA include measures to deter fish from intakes, encourage fish to travel through fish passage structures or over spillways, and decrease velocities through turbines, such as:

- spill to maximize fish passage for juvenile salmonids,

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[76] Draft Lower Columbia River Facilities Fact Sheet at 54; Draft Lower Snake River Facilities Fact Sheet at 53.

[77] For example, it generally would not be necessary to collect information on intake screens and velocities because spacing on intake screen coverings must, by design, be of sufficient size to allow adequate flow, be of sufficient thickness to withstand damage from debris and not be subject to clogging from leaves, algal growth, or other materials.

[78] *See* Draft Lower Columbia River Facilities Fact Sheet at 54; Draft Lower Snake River Facilities Fact Sheet at 53.

[79] Draft Lower Columbia River Facilities Fact Sheet at 53; Draft Lower Snake River Facilities Fact Sheet at 52.

- submersible traveling screens to deter fish from entering main unit turbines,
- vertical bar screens near intakes,
- streamlined trash racks,
- operation of turbines at +/- 1 percent peak efficiency flows, and
- operation of turbines in priority order to maximize fish passage.

EPA proposes to incorporate these "technologies" as § 316(b) requirements and conditions of the NDPES permits.[80]

UWAG is concerned that many of these technologies and operational attributes that EPA proposes to consider under Factor 4 are requirements for the facility itself, instead of the "location, design, construction, and capacity of cooling water intake structures" as provided for in CWA § 316(b). It may be appropriate for EPA to consider those technologies and facility operations in evaluating whether additional measures are needed to minimize impingement and entrainment at the intake. Indeed, as a result of the design and operation of hydroelectric facilities, the rates of impingement and entrainment specific to the cooling water intake would be so low that additional controls generally would not be warranted. But imposing NPDES conditions based on such technologies or attributes for the facility as a whole, as Region 10 proposes to do here, exceeds EPA's authority under CWA § 316(b). The Second Circuit has squarely held that EPA's authority under § 316(b) is limited to the intake structures themselves, recognizing "Congress's intent that the 'design' of intake structures be regulated directly…." *Riverkeeper, Inc. v. EPA*, 358 F.3d 174, 189 (2d. Cir. 2004). As the *Riverkeeper* court stated when it considered compliance with § 316(b) through restoration measures, measures such as "removing barriers to fish migration ... however beneficial to the environment, have nothing to

[80] *See*, *e.g.*, Draft John Day Project Permit at 17-18; Draft Little Goose Lock and Dam Permit at 18-19.

do with the location, the design, the construction, or the capacity of cooling water intake structures, because they are unrelated to the structures themselves." *Id.* Consistent with § 316(b) and judicial precedent, UWAG urges EPA to limit the factors of its BPJ test to factors specific to the cooling water intake and to remove permit conditions that would impose operations or technology requirements for the facility as a whole.

2. The BPJ Conditions Imposed in the Proposed Permits Would Limit Adaptive Management and Could Create Conflicts with Other Requirements.

UWAG is also concerned that some of these conditions are so specific that facilities would not be able to adapt their operations or fish protection measures to new information or changed circumstances. The Proposed Permit conditions extract specific requirements from Fish Operating Plans and Fish Passage Plans and make those enforceable NPDES conditions, but those plans change frequently as facilities learn what measures are successful and feasible. By contrast, permitting authorities issue NPDES permits for five-year terms and must follow state and federal modification requirements to alter the permit. The specificity of proposed CWIS permit conditions is likely to create a scenario where the referenced plans change, and, as a result, the NPDES permit requirements now conflict with those plans and/or impose requirements that are no longer contained in the plans.

Moreover, the permit conditions do not provide sufficient flexibility for the facilities to adjust their operations as needed. For example, requirements to operate turbines at +/- 1 percent peak efficiency flows could be problematic depending on maintenance or necessary upgrades at a given facility. Likewise, a mandate to operate near peak efficiency could have negative effects on the ability to operate at low flows, for example, during a drought. Also, in some cases, spills to maximize fish passage could lead to unintended consequences, such as a decrease in total dissolved oxygen and adverse impacts on water quality and fish species downstream. While

these technologies may help indicate that a facility already meets BTA (because additional controls beyond these non-CWIS technologies are not needed to minimize adverse impacts), those technologies should not be incorporated as enforceable conditions of a five-year NPDES permit.

3. The Technologies Considered in the Proposed Permits Are Specific to Those Facilities and Are Not Necessarily Appropriate for Other Facilities.

To the extent that EPA anticipates that the four-factor BPJ framework outlined in the proposed permits would be seen as a model for states and other regions in applying § 316(b) to hydroelectric facilities, UWAG urges EPA to acknowledge in the final Fact Sheets that the federal facilities at issue employ technologies that are unique and specific to their location, their waterbodies, and the relevant species in the area. As explained in Section II above, there is a wide range of configurations for hydroelectric facilities, and the measures that may be required by FERC licenses or Biological Opinions to reduce the impacts of a dam also vary widely. The fish protection measures and operational requirements to which the eight Corps facilities at issue here are subject are specific to plans that were designed based on the attributes of the facilities, their locations on the Lower Columbia and Lower Snake Rivers, and the salmonid and other fish species in the area, among other things. For different facilities in other parts of the country, the technologies and requirements considered in these Proposed Permits may not be necessary or feasible and therefore are not required by those facilities' FERC license or other authorization. EPA should clarify that permit writers should not interpret the fact that other facilities do not have the technologies identified here to mean that those facilities do not meet BTA. Of course, as explained above, where hydroelectric facilities do not have such conditions or attributes for the facility as a whole (*e.g.*, submersible traveling screens or operation of turbines at +/- 1

percent peak efficiency flows), EPA does not have authority under the CWA to require facilities to implement such facility-wide technologies or requirements under § 316(b).

G. Data Collection Requirements

The draft Fact Sheets state that, "[i]n most cases, the EPA expects existing documentation may be used to evaluate these factors."[81] UWAG agrees that hydroelectric facilities should not be required to generate new studies or information for § 316(b) purposes and that existing documentation generally can be used to evaluate these factors.[82]

Even though EPA makes this general acknowledgement, UWAG is concerned that the open-ended nature of the BPJ framework could lead permit writers to seek development of new information or costly studies (*e.g.*, impingement and entrainment studies) to inform the application of these four factors. For Factors 1 through 3, the data and calculations that can be relied on, discussed in the sections above, should be relatively straightforward. UWAG is concerned, however, about what information applicants would be required to provide for Factor 4. Requesting data that facilities do not know how to collect, particularly with respect to Factor 4, is problematic. As noted above in Section IV.B, for many hydroelectric facilities, conducting impingement or entrainment sampling at the pipe or intake structure would be very difficult, or even unsafe. Likewise, for many facilities, it may be difficult to collect information regarding the velocity approaching the intake. Therefore, UWAG recommends that EPA include a statement acknowledging that such studies or monitoring are impracticable and/or the regulatory

[81] Draft Lower Columbia River Facilities Fact Sheet at 53; Draft Lower Snake River Facilities Fact Sheet at 52.

[82] In some cases, facilities may have existing information, such as impingement and entrainment studies conducted during a FERC licensing process. If considering that existing information, permit writers should recognize that those studies typically account for impacts on species at the facility level and that environmental impacts of the cooling water intake structure would likely be only a very small fraction of the impacts considered for the dam as a whole.

costs would far exceed any plausible environmental benefits and should not be required by permit writers.

VI. Comments on Non-316(b) Proposed Permit Conditions

UWAG understands the requirements in the Proposed Permits to be specific to the facilities at issue. Some of the non-316(b) permit conditions would be problematic for other hydroelectric facilities around the country. UWAG urges EPA to clarify that the following requirements are specific to the eight facilities at issue and would not necessarily be appropriate at other hydroelectric facilities around the country:

A. PCB Requirements

The Washington Department of Ecology has listed the entire Columbia River as impaired for PCBs and the Lower Snake River as impaired for PCBs in freshwater fish, pursuant to CWA § 303(d). The Proposed Permits would require burdensome PCB management and reporting that would not be appropriate or necessary for other hydroelectric facilities across the country. The Proposed Permits would require these facilities to provide a PCB Management Plan and annual report to EPA and the state permitting agency. The PCB Management Plan must list all sources of PCBs on the premises previously removed, replaced, remediated, or reclassified, including the date on which the action was taken.[83] It also must list all potential sources of PCBs at the dam with potential pathways to interact with discharge water associated with outfalls covered by the permit.[84] According to the draft Fact Sheets, the Corps maintains a series of internal reports and tracking systems for PCBs, which may satisfy some of the proposed requirements.[85] However, in different environmental contexts and where permittees don't already collect or possess such

[83] *See*, *e.g.*, Draft Bonneville Project Permit at 16.

[84] *Id*.

[85] Draft Lower Columbia River Facilities Fact Sheet at 51; Draft Lower Snake River Facilities Fact Sheet at 50-51.

information, the proposed PCB requirements would be onerous, problematic, and unreasonable. EPA should clarify that such requirements are specific to the facilities and environmental conditions at issue and should not be used as a model for other hydroelectric facilities' NPDES permits.

B. Temperature Monitoring for Cooling Water Discharges

Due to the unique circumstances of the Columbia and Snake Rivers and the threatened and endangered salmon that are present there, the Proposed Permits also require continuous temperature influent and effluent monitoring for cooling water discharges "to inform the next permit renewal cycle to better assess the impacts from the permitted discharges on temperature in the Columbia [and Snake] River[s]."[86] These requirements are specific to these facilities and should not be seen as a model for other hydroelectric facilities. For other facilities around the country, such continuous monitoring would be unnecessary so long as monthly or quarterly samples are collected during periods of routine operation, and site-specific factors may make it difficult or impossible for many facilities to comply with such burdensome monitoring requirements. For many hydroelectric facilities, it would be nearly impossible to measure temperature at the intake because it is very difficult to access the point at which influent enters the intake structure. Further, the magnitude and force of the water going through the penstock is so great that it may be difficult to place monitoring equipment near the intake. EPA has not provided any analysis of such constraints at these or other facilities. The burden of such continuous monitoring requirements in many cases would far exceed any environmental benefits and simply would not be feasible. EPA should clarify that the continuous temperature monitoring requirements for cooling discharges are specific to the facilities and environmental

[86] Draft Lower Columbia River Facilities Fact Sheet at 46-47; Draft Lower Snake River Facilities Fact Sheet at 46.

conditions at issue and should not be used as a model for other hydroelectric facilities' NPDES permits.

VII. Conclusion

In sum, the Region's proposal to apply CWA § 316(b), even on a BPJ case-by-case basis, to hydroelectric facilities is neither compelled by nor consistent with the CWA or EPA's previous rulemakings. EPA should clarify in the final permits that it has not made a determination that CWA § 316(b) applies to hydroelectric facilities and that it will not make such a determination without full and procedurally appropriate consideration of the issue via a separate rulemaking. If EPA intends to the proposed BPJ framework to apply § 316(b) to hydropower facilities, then EPA should provide the clarifications discussed above and ensure that any BPJ permit conditions are consistent with the limits of CWA § 316(b) authority.

UWAG appreciates the opportunity to comment on the Proposed Permits and provide factual information regarding operation of our members' hydroelectric facilities. We hope that EPA will pursue our recommendations, and we look forward to working with you to address these meaningful issues.

Confederated Tribes and Bands
of the Yakama Nation

Established by the
Treaty of June 9, 1855

May 4, 2020

Sent via Electronic Mail

Jennifer Wu
Environmental Engineer
NPDES Permits Section
EPA Region 10
1200 6th Avenue, Suite 155 (19-CO4)
Seattle, WA 98101

Re: Draft National Pollutant Discharge Elimination System Permits for the Eight Lower Columbia and Lower Snake River Hydroelectric Facilities

Dear Ms. Wu,

The Confederated Tribes and Bands of the Yakama Nation (Yakama Nation) submits the following comments regarding the Environmental Protection Agency's (EPA) draft National Pollutant Discharge Elimination System (NPDES) permits for eight federal hydroelectric facilities (Facilities) on the Columbia River and the factsheets associated with these permits.[1]

The Yakama Nation is a sovereign and original Native Nation federally-recognized under the Treaty with the Yakamas, U.S. – Yakama Nation, June 9, 1855 ("Treaty of 1855").[2] The Yakama Nation's history and culture, as well as the lives of our People, are intertwined with Nch'i-Wa'na (the Columbia River) and the salmon, fish, plants, and animals that rely on its waters. The Yakama Nation has reserved rights in these resources pursuant to Article III of the Treaty of 1855. Protecting the waters of the Columbia River and its tributaries is therefore critical to the protection of our Treaty-reserved resources and rights, and ultimately to the health and welfare of our communities.

The goal of our engagement in NPDES permit applications and processes such as these is to ensure compliance with the Clean Water Act (CWA) and protection of our Treaty-reserved resources.

Background Summary

The EPA is the NPDES permitting authority for federal facilities discharging in Washington State waters, while the Oregon State Department of Environmental Quality

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[1] In addition, the Yakama Nation submits the attached comment letter concerning Section 401 Certifications.
[2] 12 Stat. 951 (June 9, 1855, ratified March 8, 1859, proclaimed April 18, 1859).

(ODEQ) is the NPDES permitting authority for such facilities discharging in Oregon State waters. The U.S. Army Corps of Engineers (USACE) operates the Facilities. The CWA prohibits the discharge of pollutants into navigable waters without permit coverage. However, the Facilities have historically been operated without NPDES permits.

In 2018, the EPA issued draft NPDES permits for review as a response to the 2014 Settlement Agreement between USACE and Columbia Riverkeeper. In early 2019, the EPA recalled the draft NPDES permits and halted the review process. On March 18, 2020, the EPA reissued eight draft NPDES permits and restarted the review process. Once issued, the draft NPDES permits would authorize point sources discharges from the Facilities including oil, grease, and water from cooling water equipment, floor drains, sumps, facility maintenance water, and other miscellaneous discharges. Upon reissuing the draft NPDES permits, the EPA sent a letter to the Yakama Nation offering to reinitiate consultation on the draft permits. The EPA also requested Washington State Department of Ecology (Ecology) and ODEQ Section 401 certifications with respect to the discharges contemplated by the draft NPDES permits.

The draft NPDES permit process and associated actions apply to following facilities:

- Ice Harbor Lock and Dam, NPDES Permit No. WA0026816
- Lower Monumental Lock and Dam, NPDES Permit No. WA0026808
- Little Goose Lock and Dam, NPDES Permit No. WA0026786
- Lower Granite Lock and Dam, NPDES Permit No. WA0026794
- Bonneville Project, NPDES Permit No. WA0026778
- The Dalles Lock and Dam, NPDES Permit No. WA0026701
- John Day Project, NPDES Permit No. WA0026832
- McNary Lock and Dam, NPDES Permit No. WA0026824
- NPDES Permit Factsheet for Lower Columbia River Hydroelectric Facilities
- NPDES Permit Factsheet for Snake River Hydroelectric Facilities

Additionally, on April 10, 2020, the previous October 17, 2018 court ordered deadline for the EPA to issue a Columbia River Total Maximum Daily Load (TMDL) for temperature

was extended to May 18, 2020. This extension was due to ongoing delays related to the COVID-19 pandemic response.

Through communication with the EPA, it is the Yakama Nation's understanding that Endangered Species Act (ESA) Section 7 consultation documents are being prepared for submittal to the National Oceanic Atmospheric Administration Fisheries (NOAA Fisheries) and U.S. Fish and Wildlife Service (USFWS).

As this brief summary illustrates, this has been a drawn out and complicated process with little to no opportunity for the Yakama Nation to provide sufficient oversight to protect our Treaty-reserved resources. The EPA's draft NPDES permit review process, as well as the associated Section 401, TMDL, and ESA actions, is being rushed and compartmentalized into several pieces that have not allowed time for meaningful consultation and input from the Yakama Nation. As a result, there is a potential that unknown and negative impacts to water quality and Treaty-reserved resources will continue throughout the Columbia River Basin.

The remainder of this letter provides comments to the EPA's draft NPDES permits and other associated actions. General topics for the remainder of the comment letter include:

- Government-to-Government Consultation
- Section 401 Water Quality Certifications
- Temperature TMDL
- ESA Section 7 Consultation and Treaty Resources
- 2018 Draft NPDES Permits
- 2020 Draft NPDES Permits

Government-to-Government Consultation

The Yakama Nation appreciates the EPA's October 1, 2018 and March 18, 2020 letters offering to initiate consultation on the NPDES permits for the Facilities. All of the facilities listed above are within Yakama Nation's ceded or ancestral lands and, as co-manager of fish stocks throughout this area, we are very interested in engaging in decisions that have or may have direct impacts to our Treaty-reserved resources in the Columbia River Basin.

Official government-to-government consultation with the Yakama Nation must take place between the Yakama Nation Tribal Council and the decision-maker from the agency proposing an action. However, before the Yakama Nation can assess and consider the key elements of an action through consultation, a staff-level technical briefing is required to discuss the action. During the 2018 NPDES permit process, a staff-level technical meeting between Yakama Nation and EPA staff was conducted on November 11, 2018 to discuss the draft permits. At the time of this comment letter, a staff-level technical meeting had not been conducted for the new draft NPDES permit process. This staff-level meeting is prerequisite to meaningful government-to-government consultation on the draft NPDES permits.

Given the short timelines associated with the draft NPDES permits, Section 401 certifications, TMDL, and ESA Section 7 consultation actions (and disruptions due to COVID-19 pandemic), however, there is not sufficient time to schedule and conduct a staff-level technical meeting. Yakama Nation staff will therefore be unable to fully brief the Yakama Nation Tribal Council in a manner that allows the Council members to make an informed decision regarding consultation. Consequently, under the current schedule, there will be no meaningful consultation opportunity for the Yakama Nation Tribal Council to weigh in on impacts to Treaty-reserved resources.

Without adequate consultation, the Yakama Nation is concerned that impacts to our Treaty-reserved resources will not be sufficiently evaluated and addressed. For example, the draft NPDES permit factsheets discussion on environmental justice issues is lacking in analysis of impacts to Native Nations and their Treaty-reserved resources. The factsheets appear to simply refer to census block proximity and do not provide a thorough discussion of Native Nations, traditional uses, and Treaty-reserved resources. The remainder of the comment letter outlines additional concerns that are appropriate for consultation.

Comment #1 The EPA must conduct a meaningful consultation with the Yakama Nation, including a staff-level technical meeting, prior to making a determination on the NPDES permits for the Facilities.

Comment #2 The EPA must perform a comprehensive evaluation of impacts to Native Nations and Treaty-reserved resources prior to making a determination on the NPDES permits for the Facilities.

Section 401 Water Quality Certifications

Section 401 of the CWA provides that states must certify federally permitted actions with the potential to discharge into navigable waters to ensure that the actions will not violate applicable water quality standards.

With respect to the Facilities, the states may invoke Section 401 authority to condition the NPDES permits to ensure protection of water quality and designated beneficial uses. This includes meeting water quality standards for temperature in the reservoirs, spill over the dams, total dissolved gas, and salmon migration. If Ecology issues Section 401 certifications here, the EPA must incorporate any conditions into the NPDES permits, including temperature standards and other criteria necessary to protect salmon, pacific lamprey, sturgeon, Southern Resident orcas, and other species from the combined impacts of dam operations and climate change.

The Yakama Nation's understanding is that ODEQ and Ecology will issue separate Section 401 certifications for the NPDES permits on the Facilities. In 2018, ODEQ delivered a precautionary objection to the original draft NPDES permit due to the timeline and separation of the process from Ecology. In 2020, the separation of process seems to be continuing. This is an inadequate and confusing approach that will result in disjointed and separate permit conditions, monitoring, mitigation measures, and reporting.

Comment #3 The EPA must ensure coordination with and between Ecology's and ODEQ's Section 401 certification processes.

Comment #4 The EPA must comply with any Section 401 certification conditions to ensure that NPDES permits are consistent with state water quality standards.

Total Maximum Daily Load

In addition to the draft NPDES permit and Section 401 certification process, the EPA is in the process of issuing a Columbia River temperature TMDL. Again, Section 401 of the CWA empowers Ecology to implement TMDL requirements as binding conditions of its certification.

Dams restrict natural processes in the Columbia River Basin, resulting in water temperatures that are so hot at times that they impede salmonid migration and increase stress, disease, and mortality. When these impacts are combined with projected climate change effects, there is significant potential for harm to Treaty-reserved salmon populations. The states seem to be cognizant of this fact. In 1994, Washington State listed the Columbia River as impaired due to high temperatures. Both Washington State and Oregon State requested the EPA issue a Columbia River temperature TMDL over twenty years ago, but the EPA has yet to issue one.

In 2018, the District Court for the Western District of Washington granted the EPA's request for a stay on issuing the Columbia River temperature TMDL, which was scheduled for completion on December 17, 2018. One of the reasons the 2018 draft NPDES permits were pulled was due to uncertainty with the Columbia River temperature TMDL. A decision on the TMDL will determine whether these new draft NPDES permits will have individual temperature allocations. In addition, the EPA is still waiting for direction from its decision-makers regarding the NPDES permits' compliance with requirements on cooling water intake structures under Section 316(b) of the CWA. The deadline for the EPA to issue the TMDL described in the District Court's Order has been extended from October 17, 2018 to May 18, 2020.

Comment #5 How does having a Columbia River temperature TMDL not yet issued impact the draft NPDES permits?

Comment #6 How can the draft NPDES permit and Section 401 certification processes take place when the TMDL has not been issued and it is not clear if EPA will meet the deadline of May 18, 2020?

Comment #7 Once issued, the Columbia River temperature TMDL and associated implementation plans must become conditions of the NPDES permits.

Comment #8 The EPA should delay final issuance of the NPDES permits until the Section 401 certification and TMDL process is completed and the Yakama Nation is given an opportunity to provide meaningful oversight.

ESA Section 7 consultation

To comply with the ESA, the EPA will initiate consultation with NOAA Fisheries and USFWS (the Services). It is the Yakama Nation's understanding that the EPA is in the process of drafting ESA Section 7 consultation documents for submittal to the Services. The EPA has indicated through communications to the Yakama Nation that it would share these documents with the Yakama Nation when they are completed. As co-manager of fish stocks throughout the areas impacted by the Facilities, the Yakama Nation is very interested in engaging in decisions with potential to impact our Treaty-reserved resources, including the ESA Section 7 process for the draft NPDES permits.

Comment #9 How does having ESA consultation not yet completed impact the draft NPDES permits?

Comment #10 EPA should make a concerted effort to include the Yakama Nation in a transparent and coordinated effort so that we can provide input and expertise on ESA Section 7 documents and consultation with the Services.

Comment #11 The EPA should delay final issuance of the NPDES permits until the ESA consultation process is completed and the Yakama Nation is given an opportunity to provide meaningful oversight.

2018 Draft NPDES Permits

In 2018, the Yakama Nation and the EPA had a staff-to-staff meeting to discuss the draft NPDES permits. The Yakama Nation raised several issues and concerns regarding the permits and process. It is not apparent that these issues and concerns have been addressed in this new process, as meaningful government-to-government consultation (including a staff-to-staff meeting) has not been conducted during the 2020 draft NPDES permits, Section 401 certification, or TMDL processes. Without consultation, it is unclear what impacts to Treaty-reserved resources will actually result.

The following issues and concerns were raised by Yakama Nation staff during the 2018 meeting with EPA staff, which still apply to the 2020 draft NPDES permits and process:

1. What is the history of NPDES permits at dams on the Columbia River and why are these permits needed now?
    a. The EPA'S letter only addressed the Facilities in the Zone 6 fishery and the Lower Snake River. However, Grand Coulee Dam has been mentioned in other correspondence. What is the status of the NPDES permit for Grand Coulee Dam?
2. We have concerns with two separate permits for Facilities on the Oregon/Washington border.
    a. What will be done to ensure discharges on both sides of the river are enforced consistently?

b. How involved is WA and OR in this permitting process?

3. Permit coverage.

   a. The NPDES permits seem to only focus on concrete structures of the Facilities. General facility-wide stormwater discharges from hydroelectric generating operations appear to be largely unpermitted/unregulated at this point and these draft permits only cover specific sub-areas or operations (ex. oil-water separators). How will facility-wide stormwater be covered in these permits? Industrial activities and hazardous material usage, storage, and disposal have historically taken place at the Facilities. For example, there is contaminated stormwater that has impacted sediments at the Bradford Island site which is part of the Bonneville Dam complex; however, these pollutant discharges have not been monitored, adequately controlled, or permitted. Furthermore, the contamination at Bradford Island was only discovered through cleanup activity. There is high probability for contaminated stormwater at the other Facilities . A much larger look at facility-wide stormwater pollutant discharges at the Facilities must be conducted and included in this effort.

   b. The Yakama Nation is encouraged to see the permit does not allow for PCB discharges of any kind. However, the Columbia River itself already contains PCBs and therefore the Facilities will discharge water with PCBs in it. How does the EPA intend to reconcile this?

   c. The Facilities have been operated for more than fifty years and are basically large industrial sites. Therefore, it would seem that EPA must complete a full screening of the chemicals present in the discharge water prior to selecting the chemicals to be regulated under the NPDES permits.

4. The temperature TMDL was set for issuance by December of 2018, but has been delayed until May 18, 2020. If issuance does not occur by May 18, 2020, these permits will be moot according the draft language. What is the EPA strategy for incorporating the temperature TMDL and adjusting if the TMDL is not issued by May 18, 2020?

Comment #12 Yakama Nation's 2018 issues and concerns must be addressed and incorporated into the 2020 draft NPDES permit process.

2020 Draft NPDES Permits

General Concerns

Each draft NPDES permit covers numerous outfalls at each of the Facilities. The following overarching issues and concerns apply to all eight of the draft NPDES permits and associated actions:

- No opportunity for the Yakama Nation to review and comment on the multiple best management and monitoring plans that will be attached to permits.
- No opportunity for the Yakama Nation to review mitigation plans, particularly related to mitigation measures for temperature.
- No opportunity for the Yakama Nation to review and comment on the multiple implementation plans that will be attached to permits.
- No opportunity for the Yakama Nation to review and comment on the EPA's evaluation of Section 401 Water Quality Certifications.
- No opportunity for the Yakama Nation to review and comment on Columbia River temperature TMDL.
- No opportunity for the Yakama Nation to review and comment on ESA Section 7 documents.
- No opportunity for the Yakama Nation to engage in meaningful government-to-government consultation.

As written, several issues remain that are not being covered in these draft NPDES permits. As a result, these Facilities, combined with the rest of the impoundments, will continue to impact water quality and Treaty-reserved resources. At a minimum, the draft NPDES permits must include conditions to cover oil spills (large and small), facility-wide storm water contamination, temperature, entrainment, and migration issues. Additionally, to be protective of water quality standards and Treaty-reserved resources, the following items need to be covered in the draft NPDES permits:

- Water behind dams;
- Water being spilled over dams;
- Water used only for hydroelectric generating purposes; and
- Water used only for navigation purposes.

Temperature Concerns

The EPA's assessment of temperature impacts is inadequate because only cooling water discharges from the hydroelectric generating facilities were evaluated.

In the draft NPDES factsheets, the EPA stated that the cooling water discharges may affect temperatures, but the effects may be small since these discharges combine with water passed over the spillways. The draft NPDES permit factsheets diminish water temperature issues with temperature calculations and rationale for outfall discharges not impacting temperatures because water coming in as discharge from upstream reservoirs is already hot. As shown in the factsheet, there are multiple dams in a row on both the Columbia and Snake Rivers. Aside from the Grand Coulee and Lower Granite dams, the remaining dams are fed by waters warmed by upstream dams.

Therefore, this is a compounding issue impacting water temperature for hundreds of miles. Dams restrict natural processes and raise water temperatures in the Columbia River which negatively impact, and at times is lethal to, adult and juvenile salmonids. The factsheets

state that the Facilities' permitted discharges have minimal impacts on temperatures in the Columbia River, primarily because of dilution and effluent temperatures. Given the locations and cumulative effects of all the Facilities combined, however, temperature impacts are not minimal and in fact are a major reason Columbia River salmonid are in peril.

Comment #13 The NPDES permits must address temperatures at the Facilities and meet state water quality standards for temperature, including preventing unreasonable degradation of surface water quality upstream and downstream of each dam.

Comment #14 The NPDES permits must include any conditions necessary to meet applicable state, tribal, and federal water quality standards.

Comment #15 The NPDES permits should include suggested modifications to facilitate mitigating impacts including: modification of fish ladders, drawing down of selected reservoirs, increasing summer flows for temperature and migration, modifying flows for habitat, and ultimately transitioning away from dependency on hydropower and obstruction of the Columbia River.

Comment #16 The Corps must submit a water quality attainment plan (WQAP) detailing potential strategies, including dam removal, to comply with temperature standards and migration and habitat needs.

Comment #17 The WQAP and all other plans should be provided to Yakama Nation for review and input so that their Treaty Resources are protected.

Conclusion

The Yakama Nation appreciates the opportunity to comment on the draft NPDES permits and associated actions by the EPA. The NPDES permits have the potential to affect Treaty-reserved resources. As such, the concerns described in these comments are of great importance to the Yakama Nation.

If you have any questions or concerns regarding this comment, please contact Ms. Rose Longoria, Regional Superfund Projects Manager for the Yakama Nation Fisheries, at (509) 865-5121 ext. 6365.

Respectfully,

Phil Rigdon, Superintendent
Department of Natural Resources

Attachment: Yakama Nation April 13, 2020 Comment Letter on CWA Section 401 Certifications

Confederated Tribes and Bands
of the Yakama Nation

Established by the
Treaty of June 9, 1855

April 13, 2020

Submitted via online web portal

Angela Zeigenfuse
Washington State Department of Ecology
PO Box 47600
Olympia, WA 98504-7600
Portal: http://wq.ecology.commentinput.com/?id=G5P9T

Re: Lower Snake and Lower Columbia River Dams Clean Water Act 401 Water Quality Certifications

Dear Ms. Zeigenfuse,

I write on behalf of the Confederated Tribes and Bands of the Yakama Nation ("Yakama Nation") Department of Natural Resources ("DNR") to support and recommend that the State of Washington, Department of Ecology ("Ecology") issue Clean Water Act (CWA) 401 certifications for eight federal dams on the Lower Columbia and Lower Snake rivers to protect and assure compliance with the State of Washington's water quality standards. Ecology has an obligation to ensure that the operation of these dams meets Washington's water quality standards. Ecology also has, and should take, the opportunity to ensure the operation of these dams continues to meet such standards in the face of the crisis of climate change.

The Yakama Nation's history, culture, and the lives of our People are intertwined with Nch'i-Wa'na (the Columbia River), and the salmon, fish, plants, and animals that rely on its waters. The Yakama Nation reserved rights in these resources in its Treaty of 1855 with the United States (12. Stat. 951). Protecting the waters of the Columbia River and its tributaries is critical to the protection of our Treaty-reserved resources and rights, and ultimately to the health and welfare of our communities.

Although Yakama Nation supports the U.S. Army Corps of Engineers ("Corps") efforts to date in fulfilling its CWA obligations in operating the Federal Columbia River Hydropower System ("FCRPS"), the Yakama Nation has serious concerns about the impacts of climate change on the Columbia River ecosystem, and the combined impacts of dam operations and climate change. Yakama Nation calls on Ecology to implement its CWA Section 401 authorities to ensure the fulfillment of the objectives of applicable federal and State laws despite the impacts of climate change.

Background

Yakama Nation understands that on March 18, 2020 the United States Environmental Protection Agency ("EPA") requested Ecology CWA Section 401 certification for the following draft permits:

- Ice Harbor Lock and Dam, NPDES Permit No. WA0026816
- Lower Monumental Lock and Dam, NPDES Permit No. WA0026808
- Little Goose Lock and Dam, NPDES Permit No. WA0026786
- Lower Granite Lock and Dam, NPDES Permit No. WA0026794
- Bonneville Project, NPDES Permit No. WA0026778
- The Dalles Lock and Dam, NPDES Permit No. WA0026701
- John Day Project, NPDES Permit No. WA0026832
- McNary Lock and Dam, NPDES Permit No. WA0026824

The United States Army Corps of Engineers (Corps) operates the dams, and federal water quality statutes and regulations do not allow the discharge of pollutants to waters of the state without permit coverage.

Under CWA Section 401, Congress allows states to protect their waterways from the impacts of federally permitted activities, like dams, that discharge into state waters.[1] Before a federal agency can issue a permit for any activity that involves a discharge into a navigable water, the federal agency must obtain a state CWA Section 401 certification (a "401 certification"). The state's 401 certification can contain any conditions necessary to ensure that the applicant for the federal permit will not violate the state's water quality standards, or other laws, and those conditions "shall become" part of the resulting federal license.[2]

Washington's CWA Section 401 certification authority reaches all water quality impacts of federally permitted dams.[3] The United States Supreme Court held that, under Section 401, the existence of any discharge at a federally permitted dam gives Washington the authority to address all of that dam's impacts to water quality and designated beneficial uses of the waterway.[4] This includes, without limitation, temperature and dissolved oxygen in the reservoirs, spill over the dams, and total dissolved gas.

EPA may take the position that Washington's review and 401 certifications are constrained to oil pollution, cooling water, and other pollutants discharged through point sources at the dams. However, "the conditions a state may require [in 401 certification] are

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[1] *S.D. Warren Co. v. Maine Bd. Of Envtl. Prot.*, 547 U.S. 370, 386 (2006).
[2] 33 U.S.C. § 1341.
[3] *PUD No. 1 of Jefferson County v. Washington Dept. of Ecology*, 511 U.S. 700, 707–08 (1994) (explaining that states may regulate the impacts of a project as a whole under Section 401, so long as a discharge is involved). The fact that the § 401 certifications at issue were triggered by federal NPDES permits, rather than FERC licenses, has no bearing on the scope of Ecology's authority under § 401. *Cf. Or. Nat. Desert Ass'n v. Dombeck*, 172 F.3d 1092, 1097–98 (9th Cir. 1998) (explaining that § 401 certifications can impose far-reaching protections for water quality, provided a discharge triggers the state's § 401 authority).
[4] *Id.*

not confined to the discharge itself . . . ."[5] The Supreme Court specifically held that Clean Water Act § 401(d) refers to the "compliance of the applicant, not the discharge," with water quality standards.[6] Moreover, issuing comprehensive 401 certifications for the Corps' dams and reservoirs would be consistent with Ecology's treatment of other federally permitted dams in Washington[7]—including Columbia River dams operated by public utility districts.[8] Accordingly, Ecology has the legal authority and obligation to ensure, through the pending 401 certifications, that the applicant's activities—here, the dams and reservoirs—meet Washington water quality standards.

Comments & Recommendations

Ecology should require compliance with State water quality standards to protect salmon, pacific lamprey, sturgeon, Southern Resident orcas, and other species from the combined impacts of dam operations and climate change. Ecology should include 401 certification requirements regarding Temperature Total Maximum Daily Load ("TMDL") and Total Dissolved Gas ("TDG"), as well as general conditions to support and evaluate conditions implementation.

A. TMDL Conditions

As demonstrated by empirical evidence and EPA modeling, the presence and operation of individual and multiple dams combines to warm the Columbia and Snake Rivers to unsafe levels for designated beneficial uses.[9] Temperatures are also increasing over historical levels due to the impacts of climate change.[10] During the summer, the rivers are frequently so warm that salmon are unable to migrate upriver to spawn.[11] When river temperatures exceed 20°C for several days at a time—as happens with increasing frequency due to climate change[12]—salmon have difficulty migrating upstream and begin succumbing to stress and disease.[13] According to the Fish Passage Center, "[U]nder a climate change scenario, the long-recognized and largely unaddressed problem of high water temperatures

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[5] Congressional Research Service, *Clean Water Act Section 401: Background and Issues*, p. 3 (2015).
[6] *PUD No. 1 of Jefferson County v. Wash. Dep't of Ecology*, 511 U.S. 700, 711–12 (1994).
[7] *See generally* Ecology, *Water Quality Certifications for Existing Hydropower Dams: Guidance Manual* (March 2005).
[8] *E.g.* Ecology Order No. 4219, *401 Certification for Priest Rapids Hydropower Project*, p. 39 (2007); *see also, e.g.*, Ecology Order No. 8981, *401 Certification for Wells Hydropower Project*, p. 22 (2012).
[9] EPA Region 10, *RBM-10 Columbia River Temperature TMDL-Preliminary Technical Information Presentation to Columbia River Tribes* (August 14, 2018); RMJOC II, *Climate and hydrology datasets for RMJOC Long-term Planning Studies. Second Edition. Part I: Hydroclimate Projections and Analyses* (2018); Fish Passage Center, *Review of April 2016 Draft of NOAA Fisheries Report*, p. 1 (May 4, 2016).
[10] U.S. Global Change Research Program, *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment*, Volume II (2018).
[11] Fish Passage Center, *Requested data summaries and actions regarding sockeye adult fish passage and water temperature issues in the Columbia and Snake rivers* (Oct. 28, 2015).
[12] John Yearsley, *A semi-Lagrangian water temperature model for advection-dominated river systems*, 45 Water Resources Research, pp. 15–16 (2009).
[13] National Marine Fisheries Service, *2015 Adult Sockeye Salmon Passage Report*, pp. 20–22 (2016).

in the [Columbia and Snake rivers] becomes an ever-increasing threat to the survival of salmon."[14]

In the early 2000s, EPA completed a draft Columbia and Snake River Temperature TMDL. The temperature TMDL is a pollution budget designed to protect salmon from hot water in the Columbia and Snake rivers. Notably, EPA's modeling clearly indicated that the dams increase water temperatures in ways that cause or contribute to water quality standard violations, and EPA concluded that "The majority of the temperature increases (as much as 6 °C) are caused by the larger dams[.]"[15]

Although EPA has not issued a final temperature TMDL, CWA Section 401 empowers Washington to implement TMDL requirements as binding permit measures through its 401 certifications.[16] Yakama Nation recommends that Ecology consider the following draft 401 certification conditions to address designated use protection and compliance with narrative and numeric water quality standards given the potentially fatal temperature impacts of dam operations and climate change:

- The load allocations, and any implementation plans, of a temperature TMDL for the Columbia and Snake rivers shall become conditions of the 401 certifications whenever such TMDL or implementation plans are issued by EPA or Washington.

- Pursuant to Washington Administrative Code ("WAC") 173-201A-510(5), the Corps must, within two years, develop and submit to Ecology a water quality attainment plan ("WQAP") that provides a detailed strategy and specific implementation measures for achieving compliance with temperature standards in the face of climate change in the reservoirs, fish passage facilities, and tailwaters. Dam removal should be one potential measure analyzed in preparation of the WQAP.

- The WQAP must include a plan for monitoring and evaluation of water quality parameters impacted by the presence and operation of federal dams.

- If Ecology determines, pursuant to WAC 173-201A-510(5)(c) and (d), that the WQAP submitted by the Corps does not ensure compliance with all applicable water quality criteria or provide a reasonable assurance that the dam will not cause or contribute to a violation of the water quality standards, Ecology shall retain the right to revoke or reopen the certification.

- If Ecology determines that the WQAP submitted by the Corps would ensure compliance with the temperature water quality criteria, the Corps must implement

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[14] Fish Passage Center, *Review of April 2016 Draft of NOAA Fisheries report 2015 Sockeye Salmon Passage Report*, p. 1 (May 4, 2016).
[15] U.S. EPA, *Preliminary Draft Columbia/Snake Temperature TMDL*, p. 39 (July 2003).
[16] EPA, *Preliminary Draft Columbia/Snake Temperature TMDL*, p. viii (explaining that "TMDLs are not self-implementing. Nor do they impose any binding legal requirements under federal law."); *see also id.* at vii (stating "the TMDL is implemented through the NPDES Permit Program, **State Water Quality Standards Certification Program**, States Non-point Source Management Program and other appropriate mechanisms." (emphasis added)).

the measures in the WQAP as soon as possible, but in no case later than five years after Ecology makes the determination required by this section.

- If Ecology reasonably determines that the impacts of climate change render the WQAP submitted by the Corps inadequate to ensure compliance with the temperature water quality criteria, Ecology shall retain the right to reopen the certification.

Implementation of these temperature-related conditions will help ensure the quality of water in the Columbia River will meet State water quality standards and support fish life in the face of the crisis of climate change.

B. Existing & Designated Use Studies

Ecology should include conditions, such as the examples provided below, to inform revised and future 401 certifications. Examples include:

- The Corps shall complete and submit to Ecology a report/study describing:
  - Existing and designated beneficial uses impacted by the dams;
  - Historic impacts of the project on the existing and designated beneficial uses;
  - Anticipated future impacts, and in particular the combined future impacts of climate change and the dams, on the existing and designated beneficial uses.
- The report/study should examine uses that do not currently exist and uses that would be available without the project impacts.
- The report/study should specifically address water quality impacts to high fish consumers like Yakama Nation members.

C. General Conditions

Yakama Nation DNR would recommend that Ecology include general conditions similar to those the agency includes in 401 certifications on Federal Energy Regulatory Commission licenses. For example, Ecology should include a condition that states: "Notwithstanding any other language in the certification, any violation of water quality standards is prohibited." Ecology should also state that conditions are subject to changes based on new state or federal laws that reflect better understanding of how to protect designated beneficial uses. In addition, Ecology should include reopener language to provide flexibility in the event Ecology needs to review the certifications based on new information to meet water quality standards, TMDLs, and other applicable requirements of State law.

Conclusion

Yakama Nation DNR appreciates the opportunity to provide comments and recommendations to Ecology regarding its 401 certifications of the listed NPDES permits. Please contact me at phil_rigdon@yakama.com with any questions regarding our comments.

Sincerely,

Phil Rigdon, Superintendent
Yakama Nation Department of Natural Resources

CC: Tim Dykstra, US Army Corps of Engineers (Timothy.A.Dykstra@usace.army.mil)
Dorothy Welch, Bonneville Power Administration (dwwelch@bpa.gov)
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